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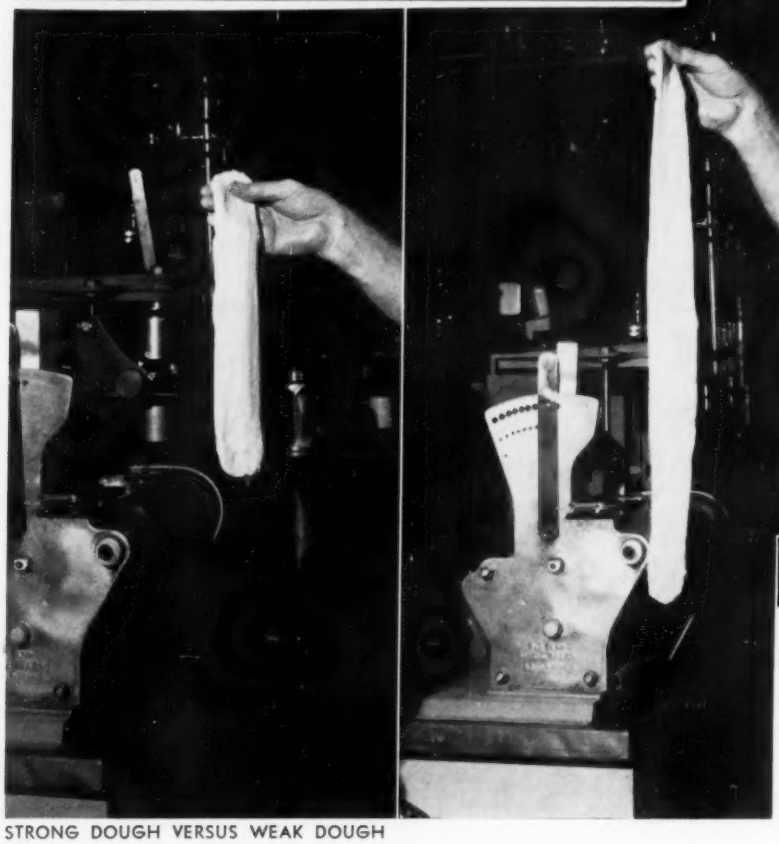
THE INTERNATIONAL MAGAZINE
FOR THE GRAIN, MILLING
AND BAKING INDUSTRIES



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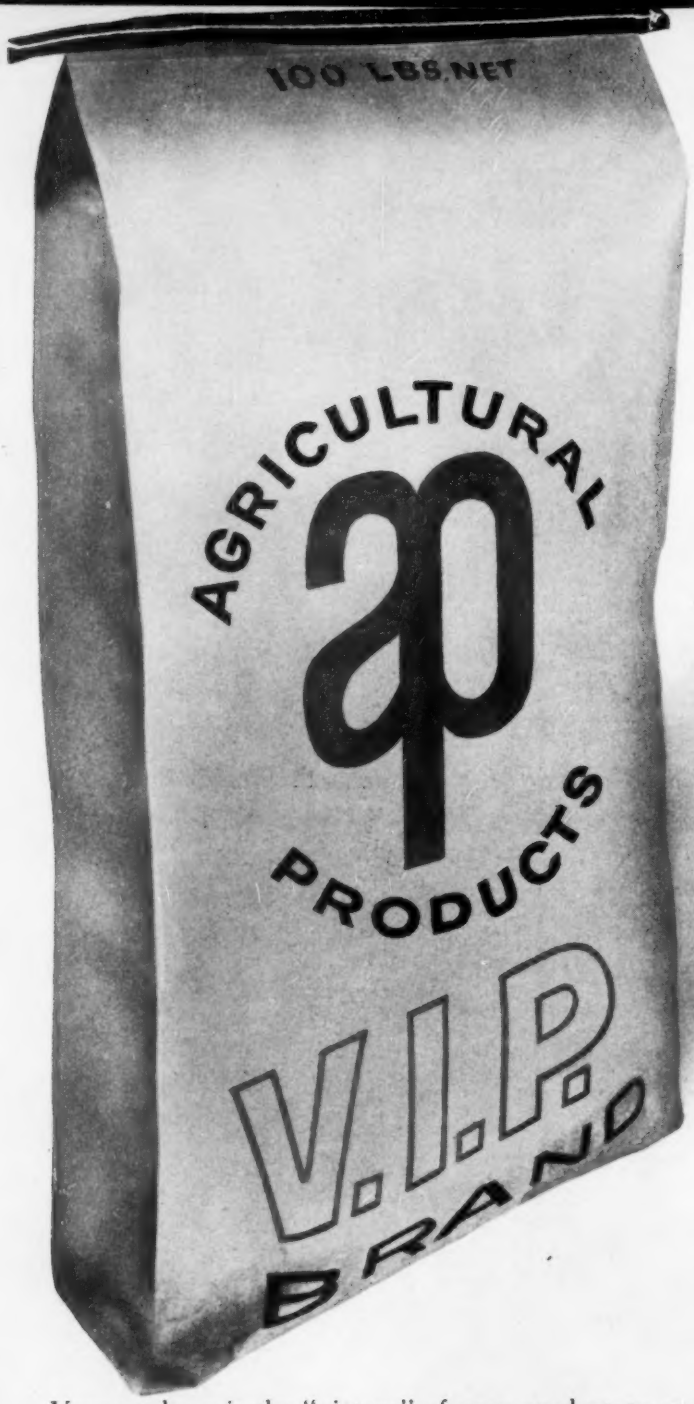

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Published Every Other Week for the Grain, Flour and Baking Industries

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EXECUTIVE AND EDITORIAL OFFICES — 2501 Wayzata Blvd., Minneapolis, Minn.; Tel. FRanklin 4-5200; Bell System Teletype Service at Minneapolis (MP 179), Kansas City (KC 295), Chicago (CG 340), New York (NY 1-2452), Washington, D.C. (WA 82).

SUBSCRIPTION RATES — One year $4, two years $7, in U.S.A. or U.S. possessions, Canada and Pan-America. Add $3 a year for postage to other countries. Single copy 50c. Second-class postage paid at Minneapolis, Minn.

Published by
THE MILLER PUBLISHING CO.
2501 Wayzata Blvd., Minneapolis, Minn.
(Address Mail to P. O. Box 67, Minneapolis 40, Minn.)

September 18, 1961

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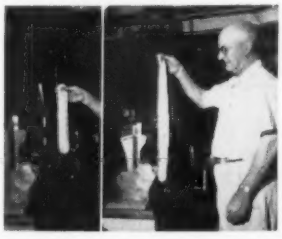
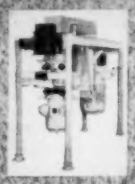


Ralph B. Potts, veteran cereal chemist, is one of the authors of the story, "Field Performance and Quality Characteristics of Montana Spring Wheat Varieties" which begins on Page 22. Mr. Potts is demonstrating the difference between a strong dough, at the left (Fig. 2 in the story), and a weak dough, at the right (Fig. 4 in the story).



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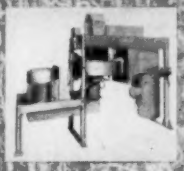
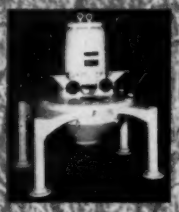

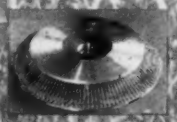

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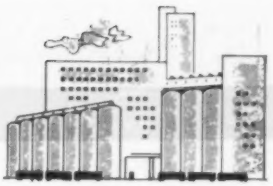
EDITORIAL OPINION



Technologists View the Sedimentation Test

By George E. Swarbreck

HIGHLY CONTROVERSIAL is the government's recently announced plan to introduce a new baking quality test for wheat, known as the Zeleny sedimentation test after its designer, discoverer or originator, call him what you will, Dr. Lawrence Zeleny. He is chief of the standardization and testing branch, grain division, Agricultural Marketing Service, U.S. Department of Agriculture, and a distinguished past president of the American Association of Cereal Chemists.

Beginning with the 1962 crop, premiums for quality of hard red winter and hard red spring wheats will be included as part of the price support operation. Explains USDA: "The premiums, which will reflect better than the current protein premiums the baking quality of wheat, are being included because of the need to encourage production of more high quality wheat, both for domestic use and export." No one will argue with that for it is a laudable object, indeed.

But what can be criticized is the usual Orville L. Freeman approach of rushing in where experienced people fear to tread. There is an essential difference between courage and foolhardiness.

The test has been designed as a simple and rapid way to estimate the strength of wheat, states Dr. Zeleny. It does not need the elaborate milling equipment usually required for bread baking or dough mixing tests and it has the advantage of speed.

But many of the technologists in the grain firms and flour mills are not happy about it. They object because they feel the test is highly empirical. It is not a technical determination in the accepted sense. Technologists prefer to reason and the chemistry behind the test is still too much of an unknown quality to satisfy them. It is a result of correlation and no more, they declare. Certainly, the sedimentation test finds little favor among the quality control men though they agree it might have some value in the field.

A claim has been made that foreign buyers will welcome it. But offering the test as a service will not be sufficient. Buyers will have to be persuaded to use it.

Some grain men do not accept that quality, as far as foreign buyers are concerned, is as big a problem as uniformity of shipments. Many importers are price buyers, not quality buyers, but when they want quality they can have it by paying for it. If, however, quality is a major factor, then it seems that a much deeper investigation should be made by everybody concerned to determine what is the best and most internationally-accepted method of quality analysis.

There is a strong feeling in the trade that quality tests should remain the sole responsibility of the buyer and seller, and not be made mandatory under government regulation.

The sedimentation test has points in its favor, but it has jumped off to a false start by the speed and manner of the USDA announcement. However, there are manufacturers ready, willing and able to provide what equipment is needed at a reasonable cost and the criticisms voiced will bring no diminution in their enterprise. And, despite the test's shortcomings, the trade will have to live with it, for the government appears set on the course outlined for the 1962 crop.

Southwestern Views on Sedimentation Test

By Martin E. Newell

MILLERS AND GRAIN MEN in the Southwest are considerably upset over the announcement of the U.S. Department of Agriculture that a sedimentation test for wheat protein quality will supplant that of protein quantity in the payment of premiums in the wheat price support loan schedule for the 1962 hard winter and spring wheat crops.

While acknowledging that encouragement of production of better baking quality in wheats is desirable, the milling and grain trades believe that the sedimentation test is not an accurate enough measurement of baking quality and that its inclusion in the loan schedules will lead to considerable confusion and much unjustified expense.

The trades also are flustered by the fact that the USDA announcement was made without any organized consultation with the domestic users of wheat and without any hearings on the subject.

The principal objections of the industry center on these points:

1. The sedimentation test is not an accurate index of bread making properties. Millers say that the relationship between high sedimentation values and good baking properties is merely a general one, based mostly on averages. In a recent survey made in Colorado on this year's crop, it is reported that in 25% of the wheat tested sedimentation values were not a close measure of baking values.
2. There is great difficulty in getting extremely accurate sedimentation readings and even greater difficulty in reproducing those readings on the same sample. Thus, findings of two testers can be at considerable variance. This is true of any test, in some degree, but is more of a problem with the sedimentation values than with other measures of bread making value now in use.
3. There is no large number of trained personnel available to make these tests at all the places where these readings need to be taken, particularly at country points. Because of tie-up with the loan program, the first testing will have to be done at the country elevator level.

When projected to the level of daily trading in grain, these three deficiencies of the sedimentation value forecast considerable confusion and trouble for grain handlers.

If the wheat trade were solely a commercial market, there would be no problem. The sedimentation test, or

EDITORIAL OPINION

any other test, if it served a purpose would be used and, if not, would be ignored. Several tests, such as farinograph curves, baking tests and the like, are now used by buyers and, to some extent by sellers, in purchasing wheat, and buyers would not replace these with sedimentation values. None of the tests used is perfect, but no one is hurt for long because no premiums are necessarily paid on the basis of any one of the tests.

It is in connection with the price support program that the sedimentation tests become a problem.

Grain men point out that the grain trade is built on the principle that grain is a fungible commodity; that is, the identity of each lot does not need to be maintained. Even in the case of protein, current trading practices are on this basis. A country elevator may bin together two equal lots of wheat, one 13% protein and the other 15%. Commingled, the average protein value of 14% has the same total commercial value as the sum of the two individual lots.

But, while this is true of protein **quantity**, it is not necessarily true of protein **quality**. A combination of two protein levels may, or may not, give a baking value half way between. And this is where the problem arises first with sedimentation values. There is no way to be sure that a combination of equal amounts of a 40 and a 60 sedimentation value will produce a 50 value, according to millers who have some experience in this matter.

This problem creates a considerable and obvious hazard. It is very unlikely that the grain trade at this time is in a position to handle wheat on an identity-preserved basis, elevator operators say. It would be costly and complicated, they declare. Many feel that, even outside the commingling question, the necessity of testing for sedimentation values at country stations might require the hiring of an extra man at each point in harvest time, adding at least $2,000 to the annual cost of operating a local station.

What would be the net market effect of adding this test to the price support program? Some feel that it would raise the cost of wheat to the miller, in that there are now no protein premiums under the support program below 13%, whereas there would be premiums paid on sedimentation values of much wheat falling below that level. However, it would be difficult to demonstrate that this is true, since it is not the loan level, but the open market that determines the values that millers put on protein and this varies from year to year with the character of the crop. The most that could be said is that it might tend to raise relative prices to mills in years in which protein was plentiful, but the difference would probably be slight.

On the other hand it probably would cost Commodity Credit Corp. a sizeable amount of money over the years. It happens with some regularity that CCC sells protein wheat to millers at market values for which no premium was paid over the base loan. Under the new set-up, premiums would be paid for sedimentation values. But if the commercial market sets no values on sedimentation readings, then CCC might be selling on a different basis than that on which it is buying. Oftentimes, sedimentation premiums might be paid on wheats which millers could not use.

Altogether the grain trade and milling industry are unhappy about the USDA plan. They believe that it was adopted with the export market primarily in mind and without study of the repercussions on the domestic market. They are hopeful that government officials might change their position on this plan before the 1962 uniform grain storage agreement is negotiated next spring.

Washington Spotlight on Sedimentation Test

By John Cipperly

POLICY MAKING OFFICIALS in the U.S. Department of Agriculture are enthused about the Zeleny sedimentation test. Probably inspiring their enthusiasm was the reported declaration of Charles Murphy, under secretary of agriculture, that he will accept responsibility for its success and, presumably, failure, too. Anyway, on his sayso, they went full speed ahead.

There is a definite feeling in the grain trade that USDA folk sneaked up from behind in announcing the official adoption of the test. Of course, it has been talked about for years. And Clifford R. Hope, distinguished former congressman from Kansas, and now leader of Great Plains Wheat, Inc., recently advocated adoption of the test as one of a score of recommendations he placed before Secretary Freeman aimed at promoting the export of more surplus U.S. wheat, particularly the hard red winter wheat in which his members have such a vital interest. But, the suddenness of the move was a surprise.

Persons who are familiar with U.S. grain standards are sympathetic with President Hope's activities and with those of Under Secretary Murphy. But they say these gentlemen are going too far too fast.

Obviously, USDA has failed to reflect on what could happen to the present stocks of old crop wheat, the pile-up of years. And in consequence the officials have failed to take into consideration the basic problems involved.

The eager beaver boys, subscribing to the Murphy leadership, do not appear to have developed the requisite amount of comprehensive discussion that is so necessary before making a change of this magnitude.

Figuratively speaking, the trade has been caught with its britches down though it can alibi that USDA came in without knocking.

Stable old line observers say: "Godspeed Dr. Zeleny in his crusade, but let not his zeal force us to jump prematurely into a complexity of collateral problems which the USDA announcement already gives signs of creating."

For instance, no one appears to know what will happen to the substantial quantities of USDA-owned surplus wheat which has no standard of value except the storage certificates that have been issued.

Prior to the adoption of the proposed sedimentation standards for the 1962 wheat crop, can the officials find a means to determine a breakdown of all the quantities of wheat it now holds in hundreds of country and terminal houses which were taken in under standards which had nothing to do with sedimentation tests? It is well known that USDA never has had any adequate or accurate estimate of the qualities of wheat held in any type of storage, much less any conception of sedimentation quality.

It can be said with truth that adoption of the proposed test is politically inspired and though it is a slap-happy proposal, it is perhaps honestly designed to provide a maximum price for wheat under the loan program for producers. «

INDUSTRY RECORD . . .
An account of Trade Affairs and Events

UNITED STATES

AGREEMENT for acquisition of the assets of Burry Biscuit Corp., Elizabeth, N.J., by Quaker Oats Co., Chicago, has been approved by both companies' boards of directors. Action is subject to approval of Burry stockholders and to favorable ruling by internal revenue department on tax status of the transaction. Board of Burry has elected to call for redemption of all its outstanding $1.25 convertible preferred stock, to be effective Oct. 14. Special meeting of Burry's stockholders scheduled Dec. 1 "to consider and, if deemed advisable, to approve and ratify" agreement with Quaker Oats.

●

District 9, AOM, to Meet

Final reminder issued to register for 25th annual meeting of District 9, Association of Operative Millers, scheduled for Davenport Hotel, Spokane, Sept. 29-30. Send registrations to **Richard W. Schmidt**, Centennial Mills, Inc., P.O. Box 2545, Terminal Annex, Spokane, Wash.

●

ADM Strike Ends

Strike at terminal elevators of Archer-Daniels-Midland Co. in Minneapolis-St. Paul area, which started June 26 and kept facilities closed more than a month, has ended. Terms of contract negotiated by ADM and United Mine Workers District 50, Local 12106, includes 7½¢ hourly wage increase for 145 workers at eight elevators. Strike also involved 12 employees at company's central research laboratory in Minneapolis.

●

Grain Firm Formed

Seaboard Grain, Inc., newly-formed firm at Corpus Christi, Texas, has started construction of million-bushel grain storage facility, with plans for expansion to a capacity of 8 million bushels if business warrants. Initial flat storage structure will handle wheat, although primary use is planned for milo. Seaboard Grain is headed by **N. P. Kendrick**, Burleson, Texas, as president. Other officers are **Morris Jaffe**, San Antonio, vice president, and **C. H. Grant**, Ft. Worth, secretary. Mr. Grant will move to Corpus Christi to manage the business. Missouri-Pacific railroad expected to build spur track to serve the new plant. Mr. Kendrick has been in grain business about 10 years, owns an elevator with 1.5 million bushel capacity at Burleson, another at Ferris, Texas, with 500,000 bu. capacity.

●

K-State Scholarships

Scholarships totaling $7,650, to support milling and feed technology work at Kansas State University, Manhattan, awarded for current year, reports **Dr. John A. Shellenberger**, head of the Department of Flour and Feed Milling Industries. Funds will provide for eight milling technology scholarships (four new, four renewals) and 12 in feed technology. The new milling tech grants will go to: **Lyle Hildebrand**, Manhattan, with the Association of Operative Millers as the sponsor; **Michael T. Malyn**, Buffalo (Dixie-Portland Flour Mills, Inc.); **Donald Salisbury**, Wichita (International Milling Co.); and **David C. Boles**, Abilene, Kansas (International Milling). Renewals are: **Robert D. Gerardy**, Green, Kansas (Percy Kent Bag Co.); **Leonard Houston**, Wichita (Nebraska Consolidated Mills Co.); **Stephen Lange**, Conway Springs, Kansas (Wichita Flour Mills, Inc.); and **Clifford Pappas**, Wichita (DCA Food Industries, Inc.). Providing the feed tech scholarships are: Ralston Purina Co., Quaker Oats Co., Industrial Research, Weitz - Hettelsater Engineers, The Miller Publishing Co., the Grain Pro-

Mr. Schneider Mr. and Mrs. Brueckner Mr. Zogg

SNAPPED BY THE CAMERA as they left for an expense-paid trip to Switzerland were Mr. and Mrs. Rudi Brueckner. A milling engineer with General Mills, Inc., and a member of the Association of Operative Millers, Mr. Brueckner turned in the best answers to a contest questionnaire used by the Buhler Corp., Minneapolis, during AOM's 65th annual technical conference. The contest was conducted in conjunction with the 100th anniversary of the parent firm, Buhler Bros., of Uzwil, Switzerland. The Brueckners' itinerary included a visit to Buhler's plant and research headquarters, such scenic places as Zurich, Lugano, St. Moritz, Zematt at the foot of the Matterhorn, and Lucerne, climaxed by a trip to Germany. Extending best wishes for a good trip were Curt Schneider and Willi Zogg, Buhler representatives in Minneapolis. Mr. and Mrs. Brueckner expect to be back in the U.S. about Sept. 20.

cessing Machinery Manufacturers Assn., and Axel Jacobson of Toronto.

●

Dividend Declared

Montana Flour Mills Co., Great Falls, has declared a dividend of 25¢ a share on outstanding common stock, payable Sept. 10 to stockholders of record Sept. 1.

●

Bemis Planning Moves

Bemis Bro. Bag Co. is planning to pull together its various headquarters operations into a single location, and Minneapolis is the place, reports **Judson Bemis**, president. Historically, the company has operated more than one headquarters office, with production and sales initially in St. Louis and procurement and financial headquarters in Boston. But in recent years, with the growing importance of Minneapolis as a key center of its activities, it has established there the offices of president and executive vice president. Bemis' four headquarters staff departments will be moved from St. Louis to Minneapolis in mid-1963, involving about 140 personnel now in sales, production and the departments of comptroller and the secretary. (Earlier this year the personnel department was moved from St. Louis to Minneapolis.) The move next year will complete this phase of the program. In 1963 headquarters for procurement will be moved from Boston to Minneapolis. When all moves have been completed, Bemis' new general offices will employ over 200 persons. In addition, it has three Minneapolis plants—a bag factory, packaging machinery plant and a physical research facility. "The split headquarters operation served extremely well, but we have reached the stage in corporate development where consolidation of general office activities can be effected," said Mr. Bemis. Headquarters will be in the remodeled Pillsbury Co. building, part of Minneapolis' new downtown North Star Center complex now under construction.

BAY STATE TO BUILD AT PITTSBURGH

Bay State Milling Co. of Winona, Minn., has taken another step in its expansion plans with selection of Pittsburgh as the site of its new facility in the eastern U.S. The announcement, made by Bernard J. Rothwell, II, president of the 62-year-old firm, comes on the heels of Bay State's acquisition last month of the La Grange Mills of Red Wing, Minn. Mr. Rothwell stated that his company intends to begin construction at Pittsburgh within the next eight months. "Our selection of the Pittsburgh area is the result of research studies conducted for some time with an eye to present and future market potential," he stated. Bay State has doubled its size since 1955 and now maintains mills at Winona, Red Wing and Leavenworth, Kansas.«

●

GMI Expanding

Structural steel is "going up" for a two-story addition to the James Ford Bell Research Center of General Mills, Inc., in Golden Valley, Minn., west of Minneapolis. Scheduled for completion Nov. 1, a total of 1,042 tons will be used for the project by the builder, American Bridge Division of U.S. Steel Corp.

●

Earnings Hit Record

Quaker Oats Co., Chicago, reports record earnings for the ninth consecutive year. Net profits for the fiscal year ended June 30 reached $15,079,444, up 11.5% from $13,523,132 for fiscal 1959-60. Earnings were equivalent to $3.83 a share on common stock compared with $3.40 in 1959-60. Sales, too, hit a historic company peak of $338,932,853, more than $17 million over the previous period. In the company's annual report stockholders were told by **R. Douglas Stuart**, board chairman, and **Donold B. Lourie**, president, of continued growth in the food business, along with the statement that "our leaders in the grocery products field have grown along with it."

●

'Let's Talk Statistics'

Statistics, or more specifically, their universality in business and industry, will be covered in depth when the American Society for Quality Control holds its 16th Midwest conference at the Chase-Park Plaza Hotel in St. Louis Oct. 19-20. More than 500 quality control personnel plan to attend and will hear authorities from their own and other fields develop the theme, "Universality of Statistics."

●

Will Mitchell, Jr. . . .

. . . has been appointed director, research division, Allis-Chalmers Manufacturing Co., Milwaukee, reports **R. S. Stevenson**, president. Mr. Mitchell has been acting director of the division since September of 1960. He joined Allis-Chalmers in 1947 as director of the firm's basic industries laboratory, a short time later moved up to research supervisor, then became assistant director of research in December, 1951. He advanced to associate director in November of 1956, which position he held until named acting director.

●

J. S. Davis . . .

. . . vice president and sales manager, Fisher Flouring Mills Co., Seattle, has retired after 50 years' service which brought him "up the ladder" from office boy to billing clerk, on to sales manager, and then into the area of company executive. He also served on Fisher's board of directors and with its associate firm, White Dulaney Co., Seattle. Except for a period of employment "out East" with the Federal Milling Co. prior to coming West, Mr. Davis has spent his entire business career with the Seattle firm. The retiring company officer was feted at the annual meeting of Fisher's 25-Year Club and at a dinner honoring his retirement. Announcement of his retirement was made by **John L. Locke**, president and another of the company's veteran executives.

J. S. Davis

●

GPW Men In Canada

Two officers of Great Plains Wheat, Inc., are rounding out a tour of the Prairie provinces in Canada, studying techniques of marketing, grading, storing and exporting of grain, particularly wheat and durum. They are **Otis Tossett**, Lansford, N.D. (also a member of the North Dakota State Wheat Commission) and **Lloyd Knotny**, a Colorado wheat grower affiliated with that state's wheat commission. Mr. Tossett is a vice president of Great Plains Wheat and Mr. Knotny is a member of the organization's board of directors.

●

William E. Westerbeck . . .

. . . formerly grain merchant with Cargill, Inc., Minneapolis, placed in charge of new office in Chicago Board of Trade Bldg., set up by American Maize Products Co., Hammond, Ind., to handle its procurement of grains.

RECORD FISCAL YEAR:

Nebraska Consolidated Reports Climb in Earnings, Sales

THE YEAR 1960-61 was a financial record breaker for Nebraska Consolidated Mills Co., one during which earnings climbed to twice those of the previous year and sales rose a sturdy 13%.

Hard work and good management paid off in several areas of operation, including the firm's wholly-owned subsidiary, Molinos de Puerto Rico, which produced profits in its second year of operation, and now is moving on with an excellent start into its new fiscal period.

In the continental U.S., Nebraska Consolidated's principal business — milling of bakery flour — also produced larger sales and increased profits in the fiscal year ended July 2, reports J. A. Mactier, president.

In its annual report to stockholders, the firm shows after-tax profits of $959,332 compared with $450,450 for 1959-60. Earnings amounted to $1.71 a share, up from the figure of $1.01 for the previous period, at which time Nebraska Consolidated had 30% fewer shares outstanding. Dividends were paid to stockholders on a basis of 75¢ a share.

As a brightener on the sales side, the company hit a figure of $57,165,020 for 1960-61 against $50,450,682 the previous year.

Subsidiary Moves Ahead

Speaking with pleasure of strides made in the Puerto Rican operations, Mr. Mactier reported, "Our management and employees in San Juan took great strides these last 12 months toward attaining the high standards of operating efficiency and of service to our customers which are traditional with the Nebraska Consolidated Mills Co."

All of Molinos de Puerto Rico's products, bakery flour, formula feeds and corn mill products, showed increased sales. The subsidiary now has 225 employees, only six of them from the continental U.S., and only five of whom were with Nebraska Consolidated three years ago. Molinos de Puerto Rico's products have been sold primarily in Puerto Rico. However, during the past year it began exporting flour, formula feeds and corn meal to the Caribbean islands and to Latin America. This year approximately 15% of the Molinos firm's total volume will be exported. firm's total volume will be exported. «

Nebraska Consolidated Mills Co. and Subsidiary

Consolidated Balance Sheet

ASSETS

	July 2, 1961	July 3, 1960
CURRENT ASSETS:		
Cash	$ 750,968	$ 1,591,434
Receivables:		
Customers' notes and accounts	6,033,714	4,131,349
Less reserves for doubtful accounts	250,493	138,037
	5,783,221	3,993,312
Accrued grain storage	48,090	79,542
Other	111,903	61,059
Total receivables	5,943,214	4,133,913
Margin deposits	31,898	7,429
Inventories	6,495,733	3,395,643
Prepaid expenses	269,900	130,603
Total current assets	13,491,713	9,259,022
OTHER ASSETS:		
Membership, deposits and misc. noncurrent receivables	100,007	106,132
FIXED ASSETS, AT COST:		
Land	585,110	488,475
Buildings, machinery and equipment	11,991,382	10,196,074
Furniture and fixtures	300,707	258,174
Autos, trucks, trailers, etc.	1,052,257	591,272
Construction in progress	125,345	400,852
	14,054,801	11,934,847
Less allowance for depreciation	4,936,003	4,344,191
Net fixed assets	9,118,798	7,590,656
DEFERRED EXPENSES:		
Finance expense, less amortization over lives of issues	48,147	50,888
Other	6,857	19,932
Total deferred expenses	55,004	70,820
Copyrights, brands and other intangibles	1	1
	$22,765,523	$17,026,631

LIABILITIES

	July 2, 1961	July 3, 1960
CURRENT LIABILITIES:		
Notes payable within one year:		
To banks	$ 6,355,000	$ 4,161,534
Current portions of long-term debt	527,753	280,000
Total notes payable within one year	6,882,753	4,441,534
Accounts payable and accrued expenses other than taxes	1,309,183	929,032
Accrued taxes, other than income taxes	133,815	127,237
Federal and state income taxes, estimated	668,643	91,650
Total current liabilities	8,994,394	5,589,453
LONG-TERM DEBT, less current portions included above	3,934,232	3,370,000
Deferred federal income taxes	375,000	253,000
STOCKHOLDERS' EQUITY:		
Common stock of $10 par value per share— Authorized 1,000,000 shares; issued and outstanding: July 2, 1961—559,755 shares; July 3, 1960—447,804 shares	5,597,550	4,478,040
Capital surplus	96,082	96,082
Retained earnings	3,768,265	3,240,056
Total capital stock and surplus	9,461,897	7,814,178
	$22,765,523	$17,026,631

STATEMENT OF CONSOLIDATED EARNINGS

	Fifty two weeks ended July 2, 1961	Fifty-three weeks ended July 3, 1960
Sales of products and services	$57,165,020	$50,450,682
Costs:		
Costs of products and services sold, exclusive of items shown below	54,291,328	48,595,163
Depreciation	654,999	542,352
Interest	536,684	509,237
Other (income)	(99,522)	(89,840)
Federal and state income taxes	822,199	443,320
Total costs	56,205,688	50,000,232
Net earnings	$ 959,332	$ 450,450

STATEMENT OF CONSOLIDATED CAPITAL SURPLUS

Balance at beginning of period	$ 96,082	$ 93,107
Excess of basis of assets acquired over par value of stock issued therefor	.....	2,975
Balance at end of period	$ 96,082	$ 96,082

STATEMENT OF CONSOLIDATED RETAINED EARNINGS

Balance at beginning of period	$ 3,240,056	$ 3,125,144
Net earnings for the period	959,332	450,450
	4,199,388	3,575,594
Deduct:		
Cash dividends—75c per share	419,816	335,538
Expense incurred in issuance of additional shares of stock	11,307	.....
	431,123	335,538
Balance at end of period	$ 3,768,265	$ 3,240,056

Canadian Millers Review Affairs, Play Golf

CANADIAN MILLERS' McDonald & Robb trophy for the champion miller-golfer of the year changed hands but not location. Winner was Andy Rutter, Quaker Oats Co. of Canada, Ltd., pictured at right, and he wrested it for 1961 from fellow Quakerite and last year's champion, Stewart M. Lockington and 32 other miller-golfers. But Mr. Lockington, at left, helped carry the trophy back to Quaker HQ at Peterborough, Ont.

THE CHARLES RITZ trophy for the top veteran golfer —over 49 years of age—went to Arthur Atkins, right, president of Ogilvie Flour Mills Co., Ltd. Mr. Atkins tied for second place with fellow Ogilvie executive, Fred T. Rea. Presenting the trophy is Clifford E. Soward, CNMA chairman and president of Maple Leaf Mills, Ltd.

Picture-Story

by

George E. Swarbreck

THE MEN who made an important contribution to Canada's economy by selling somewhere in the region of 16 million hundredweights of flour, milled from Canadian wheat, in overseas markets during the crop year 1960-61 met a few days ago to review their affairs.

Location—the picturesque Seigniory Club at Monte Bello in the province of Quebec. Occasion—the annual meeting of the Canadian National Millers Assn.

Those same men, senior executives in the companies making up the major part of the Canadian milling industry, are also responsible for producing nearly 25 million hundredweights of flour for domestic consumption, along with a variety of cake mixes and the like. There are digressions by some firms into durum flour, soups and, of course, animal feedstuffs, such is the diversification now marking the upward development of the Canadian milling industry.

Re-elected chairman of the association for another year was Clifford E. Soward, president of Maple Leaf Mills, Ltd., with James G. Wharry, president, Quaker Oats Co. of Canada, Ltd., as vice chairman. Because exports play such a large part in the economy of the Canadian milling industry, the association has an important and active export committee chairmanned by Eric Feldthusen, Robin Hood Flour Mills, Ltd. Newly elected to the post of vice chairman of this committee was George B. MacLean, Ogilvie Flour Mills Co., Ltd.

On hand as officials of the Ontario Flour Mills Assn. were G. T. Roe, Great Star Flour Mills, Ltd., president of the group, and Harry J. Dowsett, secretary-manager.

A move of major significance was announced by Mr. Soward—the decision of the Ontario association to take up membership in CNMA. Operating separately for many years, the two associations will now make the industry more truly representative of the national flour milling structure when speaking to the government.

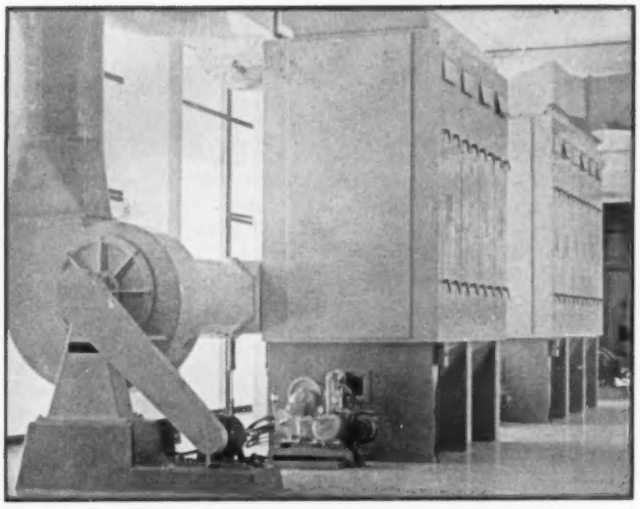
Concerted action, too, will enable the flour milling industry to improve even more its ability to be of service to the domestic consumer and to better its contribution to the national economy through export business, representative millers feel.

The industry has done a great deal to help itself in recent years, particularly with an aggressive export promotional program organized through the machinery of the Canadian Flour Export Committee, of which Mr. Feldthusen is chairman and Mr. Dowsett secretary. Relations between the industry and the government departments concerned with its welfare—Department of Trade and Commerce and Department of Agriculture — have been excellent, millers commented. And the Canadian Wheat Board makes up a triumphant trilogy of partnership for the millers.

The interest of the government and official appreciа-

OCRIM

COUNTER-CURRENT SUCTION SUPERFILTER MSA



Cross-section of a suction filter sleeve during the cleaning phase.

Cross-section of a suction filter sleeve during filtration

1. Cleaning is insured by reversing the direction of the air current and by placing frames of a special design which regulate the radial shaking of the sleeves into the filter tube.

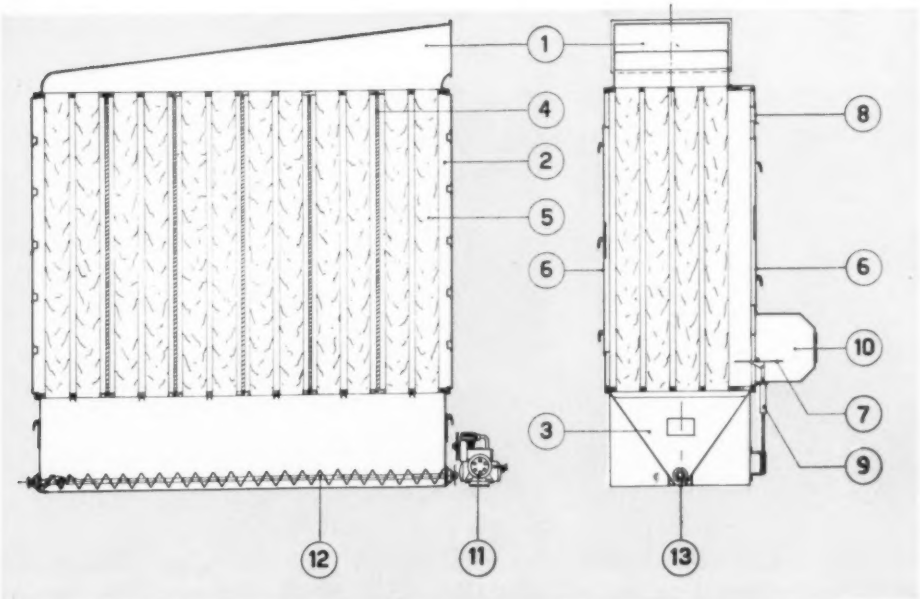
2. The opening of the outside air-inlet valve is effected by a simple pneumatic control system.

3. The internal air circulation has been modified with respect to the conventional suction filter in order to avoid useless deviations that would increase the loss of pressure and to favor the fall of dust towards the hopper.

4. The MSA superfilter, when fitted in a pneumatic plant, does not require the use of a second centrifugal fan.

5. The irrelevant loss of pressure, the reduction to a minimum of air deviations and the efficient cleaning of the filtering surface are the determining factors in the increased yield of the fan.

6. The total power consumption of a superfilter serving the pneumatic plant of one of our 50-ton flour mills, does not exceed 0.8 H.P.



1. Dust-laden air inlet
2. Filter casing
3. Dust collecting hopper
4. Compartment
5. Filter tube
6. Inspection doors
7. Main air valve
8. Cleaning air valve
9. Pneumatic valve
10. Air outlet
11. Air compressor with timer
12. Collecting auger
13. Discharge air seal

OCRIM MILLING ENGINEERING WORKS, Cremona, Italy

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Canadian Review (Continued)

tion of the way the industry runs its affairs, with benefit to Canada nationally and internationally, were evidenced by the presence at the association's annual dinner, a feature of the program, of S. C. Barry, deputy minister of agriculture; Robert M. Esdale, chief, grain division, and W. R. Hickman, coordinator markets development, both in the Department of Trade and Commerce, and Clive Davidson of the Canadian Wheat Board.

After disposing of the serious business of the meeting, the millers entered into hot competition, not for flour bookings, but for possession of the prized McDonald & Robb trophy, presented by the milling firm of that name, for the champion miller-golfer of the year.

The 1961 victor was Quaker Oats' Andy Rutter who returned a gross of 87 for a net of 68.

Tying for second place were two Ogilvie executives, Arthur Atkins and Fred T. Rea, both with a net of 69. Mr. Atkins shot a skilful 89 on the tricky Seigniory course, Mr. Rea an assured 77. And though there was a tie, Mr. Atkins' age—he confessed to having passed his 49th milestone—gave him possession of the Charles Ritz trophy for veteran golfers.

Popular "guest" at the affair was H. Norman Davis, former CNMA chairman and retired president of Ogilvie. Mr. Davis, with Mrs. Davis, recently returned from an extensive trip to the Scandinavian countries with a side trip to Russia.

Relating his experiences to fellow-millers, he said there was no trouble between himself and Mr. Khrushchev because he was in Leningrad while Mr. K. carefully stayed in Moscow.

Mr. Davis also stopped off in Paris and paid a visit to the Folies Bergere. As a man who has made an important contribution to making Canadian flour a valuable export commodity, he thinks he has hit on another money spinner—exporting Canadian maple leaves to Paris!

MERITS OF MILLERS as golfers was the subject of this discussion between, left to right, William H. Pinchin, president, Pillsbury Canada, Ltd.; Charles Ritz, president, Robin Hood Flour Mills, Ltd., and George H. McIvor, chairman of the board of Robin Hood.

PLAYING THE ROLE of defending attorney for smiling Fred Rea, the man who had the temerity to tie his boss at golf, is H. Norman Davis, left, retired president of Ogilvie and former CNMA chairman.

GRAHAM M. MacLACHLAN, executive vice president, Maple Leaf, at far left, Mr. Atkins, and John Tatam, vice president and chief executive officer of Robin Hood, rest after their labors on the course.

ASSISTING BILL THAIN, left, Maple Leaf, from the field of battle, are fellow Maple Leafians, George Lancey and John L. Cavanagh. Mr. Thain had to retire from the contest after straining a leg muscle.

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WHEAT IS MORE THAN JUST 'ONE' COMMODITY:

Story of Bread Grain Production, World Distribution Outlined for Seminar by Dudley J. Russell

WHEN DISCUSSING WHEAT we are talking, actually, about many different commodities, each with its own characteristics, its own supply and demand factors, and its own problems, Dudley J. Russell, president, Atkinson Milling Co., told those in attendance at the annual grain marketing seminar sponsored by the Minneapolis Grain Exchange.

Dudley J. Russell

As one of the principal speakers for the three-day session, Mr. Russell covered the gamut of world wheat supply and distribution, along with the part played by major countries in its growth and dissemination. His paper was titled "The Demand for Wheat by Classes."

Mr. Russell pointed out that it is so easy just to say that America today has a "wheat surplus," that we should somehow "cut wheat production," "increase wheat exports," "find new uses for wheat," or "assure the wheat farmer a fair price for his crop."

"All of these concepts conveniently overlook the fact that when we discuss 'wheat' we are not talking about a single, unchangeable elemental commodity like tin, sulphur or helium," he stated, then launched into a review of the nature of wheat, its past and present importance as a crop, and where it is grown and consumed in the world today, particularly as regards the U.S.

Unique Gluten Quality

Mr. Russell reminded the group of wheat's position for thousands of years as the single most important crop in world trade—principally because of its uniqueness in containing the gluten so vital to the bread baking process.

"Rye and other grains do not possess this unique characteristic," explained Mr. Russell, "and when we ask for rye bread at the bakery, what we are actually getting is not more than 30% rye and at least 70% wheat."

Moving into the subject of the tremendous efforts being made in all leading wheat producing countries to develop new and better wheat varieties, Mr. Russell spoke of recent experimental work along these lines which he viewed at the University of Minnesota.

"One of the most interesting sights to be seen there is the area where wheats from all over the world are grown each year, and those showing desirable characteristics are used in cross-breeding experiments," he said.

World Statistics

Following with statistics on the world's crops and eating habits, Mr. Russell referred to the fact that the Soviet Union grows a quarter of the world's wheat and 60% to 70% of the world's rye, with an ability to produce more "if brother Khrushchev ever decides to pay his farmers with consumer goods instead of promises."

"It's a bit ironic that we seem, at the moment, to be moving in the opposite direction," commented Mr. Russell. He then referred to recent expression of "shock" by Orville L. Freeman, secretary of agriculture, upon discovering, when he took office, that the U.S. has no long range master plan for agriculture.

"Personally, I suspect that despite the best efforts of planners in Moscow, Washington, Ottawa or anywhere else, the production and consumption of wheat is so universal that it will always have a true world price based on its cost of production and desirability relative to other commodities," added Mr. Russell. He expressed the view that artificial controls or incentives may temporarily postpone the old law of supply and demand, but that these certainly can never repeal it.

Mr. Russell presented charts and statistics on total U.S. wheat production by areas in key years since 1869, then—with more charts—broke down his information into distribution of the various wheats by types and areas in which they are grown.

Focusing his talk on low protein hard winters, Mr. Russell pointed to these as "the real surplus problem facing us today."

"Not only is the present crop unusually low in protein, but the huge stocks held by the Commodity Credit Corp. have been very thoroughly picked over and the best lots long since acquired by domestic or foreign commercial buyers, either by outright purchase or by swapping, so that the government's holdings today are of poor average quality," he told the seminar, then added: "These maneuvers have not been illegal, and it can be very logically argued that we 'should' keep the best of our wheat for ourselves, and for foreign buyers willing to pay a premium for quality, but it does vastly complicate the problem of disposing of the surplus."

Mr. Russell concluded by commenting, "It is a great deal easier to describe the wheat problem than to propose a workable and politically practical solution for it." He stated that, in his opinion, by far the most sensible approach he has yet seen is contained in a paper presented before the American Economic Assn. last December by Dr. Helen C. Farnsworth, Stanford University, entitled "The Problem of Multiplying Effects of Special Wheat Programs."

Additional Subjects

Other speakers at the seminar included Clarence D. Palmby, executive vice president of the U.S. Feed Grains Council, formerly prominent in the area of federal grain control; Dr. John A. Shellenberger, head of the Department of Flour and Feed Milling Industries at Kansas State University, Manhattan; Ray A. Goldberg, assistant professor of business administration at Harvard University's Graduate School of Business Administration, and Fred R. Taylor, chairman of the Department of Agricultural Economics, North Dakota State University.

Mr. Palmby spoke on the topic "What Should be Our Goals with Respect to Agriculture?"; Dr. Shellenberger on "The Potential for Improving the Quality of Export Grain"; Mr. Goldberg on "A Concept of Agribusiness," and Mr. Taylor on "Possible Effects of Land Retirement Programs on North Dakota."

Robert D. Wheeler, Department of Economics, Montana State University, presented a paper, "The Agricultural Surplus: A Parity Land-Price Approach," which he co-authored with James R. Leonard, also of Montana State. «

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New Gulf Elevator Opens:

Pascagoula Terminal Provides Additional Outlet for Exporting Grain

A NEW GULF PORT is now ready to export grain. The new Jackson County Terminal Grain Elevator, operated by the Standard Milling Co. at Pascagoula, Miss., was formally opened at dedication ceremonies Sept. 15.

Completed at a cost of over $4 million by Jackson County, Mississippi, the 2.1 million bushel elevator on the Pascagoula River is an important addition to the nation's grain export facilities. The elevator is one phase of a broad program to develop the Mississippi coastal region industrially. Through the Mississippi Agricultural and Industrial Board, a state agency, and the Jackson County Board of Supervisors, big plans have been made for port development in the Pascagoula area, including a recent $125 million oil refinery project.

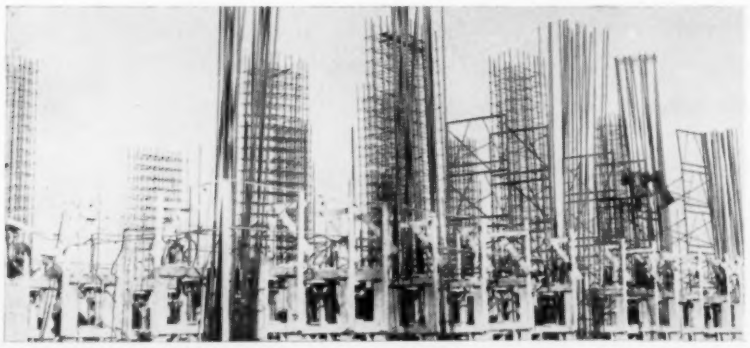
Led by Mississippi Governor Ross R. Barnett and Si Corley, secretary of agriculture, state and county authorities joined with official visitors from Washington and nearby southern and southwestern states in the dedication ceremonies last week. Officials of Standard Milling were present for the dedication, as well as many grain and shipping industry representatives and consular agents of foreign countries.

On the evening preceding the dedication, Standard Milling was host for a cocktail party and buffet supper at the Holiday Inn, Pascagoula, for the Governor, Secretary, members of the state and county boards, and other guests.

Arthur Thompson, director of the grain banch, Commodity Stabilization Service, U.S. Department of Agriculture, Washington, and Edward Jaenke, assistant director, were in Pascagoula for the opening, as were representatives of CSS from the Dallas district.

Mr. and Mrs. Paul Uhlmann, Sr., Kansas City, president of Standard Milling, and Mr. and Mrs. Ralph Friedman, New York, chairman of the board, were at the dedication. Others from the Standard company who attended from Kansas City were Mr. and Mrs. R. Hugh Uhlmann (Mr. Uhlmann is executive vice president); Mr. and Mrs. Paul M. German (Mr. German is vice president); Walter Kohn, export manager, and Elmer E. Kohlwes, general traffic manager. Mr. and Mrs. Homer Pryor also were present. Mr. Pryor is Washington representative of the firm. Also attending from Ft. Worth, Texas, was Kay Kimbell, a director of Standard Milling.

Operation of the port is under the direction of the Jackson County Port Authority, of which W. R. Guest, Sr., is president, and Al S. Johnson is port director. The port area is outstanding for ease of access. It is only nine miles from deep water, and no tug is needed for entry to the docks. The pass is 35 ft. deep and 500 ft. wide. The channel is 35 ft. deep and 275 ft. wide, including the portion at the grain elevator and turning basin. These natural advantages mean substantial cost savings to vessels. The port also connects with the Intercoastal Waterway System.



DURING CONSTRUCTION of the new Jackson County (Miss.) Terminal Grain Elevator this "forest" of steel reinforcing rods was erected preparatory to the pouring of concrete. As a sidelight, illustrating the unusual foundation work required for a waterside elevator, it was necessary to drive 104 miles of piling, or a total of 7,800 individual piles, to establish a safe foundation. At Pascagoula, a dense network of piles was driven down 50 to 75 ft. to reach a compacted subsoil capable of carrying the load.

Main Rail Lines

Landward, the port is served by the main line of the Louisville & Nashville railroad, for east and west traffic, and the Mississippi Export Railroad connects with the Gulf, Mobile & Ohio Railroad 40 miles north of the port, making direct service available from St. Louis, Chicago and Kansas City. A storage yard is provided for 400 rail cars immediately adjacent to the elevator. U.S. Highway 90 runs just north of the elevator, and parking space has been provided for about 250 trailer trucks.

Managing the elevator for Standard Milling is William R. Rogers, vice president, who formerly was Buffalo manager for the firm. Arthur Deline is elevator superintendent.

The 2,100,000-bu. house is built for rapid handling. It has a 50-ft. automatic car dumper and a 60-ft. truck dumper. A marine leg is available for barge unloading. The loading-out facilities are composed of six spouts, each capable of handling 25,000 bu. grain per hour. Vessel loading capacity is 50,000 bu. per hour. The elevator is designed so that all legs can operate at once, giving maximum flexibility. Service facilities are available for grain drying (2,000-bu. per hour) and sacking (2,000-bu. per hour) as well as a complete cleaning unit.

The Jackson County Port Authority has plans to make Pascagoula a busy port for all types of commodities. A series of warehouses is planned for packaged commodities, including flour. The first of these has already been built near the grain elevator. A substantial complex of paper, chemical, feed, fertilizer and canning factories has been built up in the port area recently to add to the older fishing and boat-building activities there.

Including the Pascagoula elevator, Standard Milling now has total facilities for grain storage of 23,100,000 bu. Other terminal elevators are located at Buffalo (5,000,000 bu.); Kansas City, Mo. (4,650,000 bu.); Kansas City, Kansas (4,000,000 bu.); Burlington, Colo. (1,000,000 bu.); Altus, Okla. (1,280,000 bu.); Minneapolis (1,000,000 bu.), and country point elevators (4,000,000 bu.). «

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2. STERWIN CHLORINATOR—Constantly uniform in treating flour because it accurately, automatically meters even the most minute quantities of chlorine. Effects economies through minimum maintenance. Eliminates guesswork and proportioning. Precise metering to individual agitators. Tested and proved in long-time successful mill operation.

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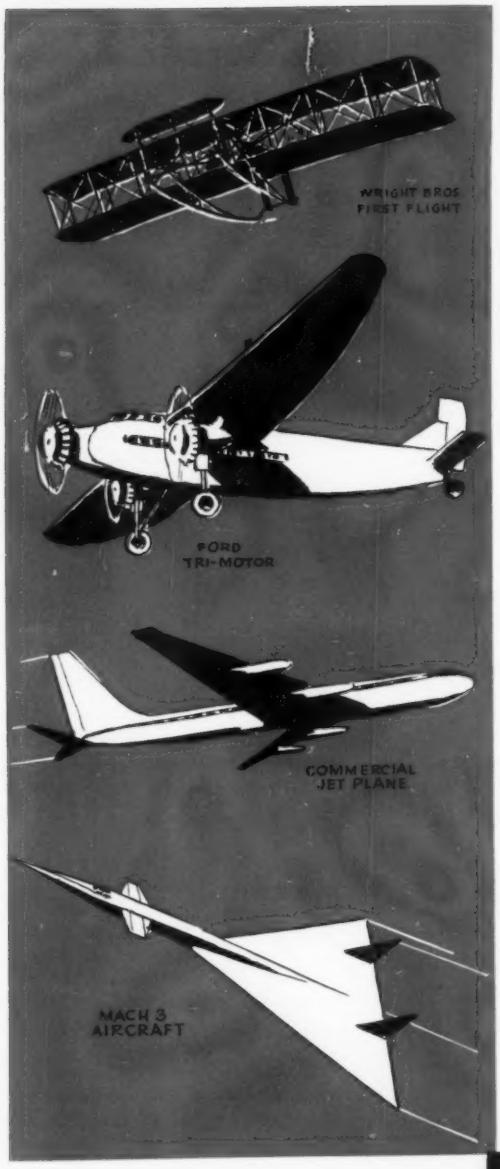

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Field Performance, Quality Characteristics Of Montana Spring Wheat Varieties

By R. K. BEQUETTE, F. H. McNEAL and R. B. POTTS

FINDING A VARIETY of wheat which will grow well, yield high and satisfy over the years is much more than a matter of planting, growing, milling and test baking.

Techniques and procedures of the geneticist, physiologist, entomologist, pathologist and cereal chemist are all employed in evaluating such factors as yield potential, resistance to insects and diseases, and the quality of each wheat variety, all with good reason.

Statistical procedures are called upon to reduce the risk of drawing erroneous conclusions from an unwieldy, sometimes confusing array of data.

Add to all of the foregoing advances made in climatology which should—for best results—provide detailed descriptions permitting a more accurate projection of the information collected each year.

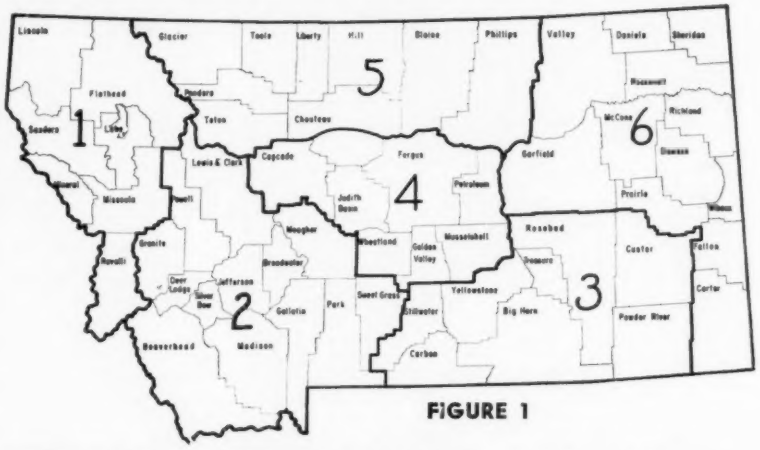


FIGURE 1

MONTANA HAS BEEN divided into six districts to make varietal recommendations more specific. Other area designations within these districts are used, such as irrigated land, dry land, intermountain valleys, leaf rust areas, sawfly-infested areas, etc.

Evaluation of field and laboratory data collected for a group of varieties grown at a single location in any particular year is easy. However, the validity of conclusions or recommendations drawn from such a limited sample is subject to question because the inherited agronomic and quality characteristics of wheat varieties may be modified during growth and ripening by a multitude of environmental conditions.

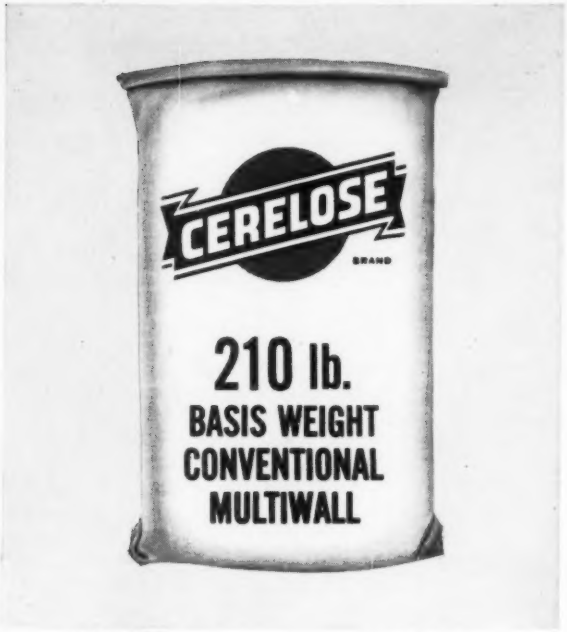
In addition, some varieties perform well over a wide range of soil and climatic conditions, whereas others have a very narrow range of adaptation. Therefore, accurate varietal characterization can only result from careful analysis of data collected at many locations for several years. Such data must accurately represent the normal range of growing conditions encountered in each area.

If you were a Montana grain grower which variety of wheat would you produce, spring or winter? There's been a significant shift from the former to the latter the past 10 years—and it will continue rapidly unless higher yielding springs with good quality are forthcoming. This means yield, insect and disease resistance must be improved. To achieve those ends an active breeding program is being conducted, one in which milling and baking quality, along with field performanace, receive equal emphasis. Suggestions and opinions of growers, their personnel and organizations, are considered in the making of new varietal recommendations. And, as the authors point out, many branches of science lend their talents to this evaluation. The varietal characterizations presented represent a summary of field data collected during the past 10 years. The discussion of milling and baking quality is a summary of data obtained over the past three years.

Breeding Program

Montana's spring wheat improvement program presently is designed to benefit producers who cannot grow winter varieties economically, to counter the rapid shift from spring to winter wheat. In 1949 nearly 71% of the total Montana wheat acreage was devoted to hard red springs, but 10 years later only 54% was being used for this purpose. In 1960 a further reduction was evident.

Acreage restrictions, improved tillage and seeding equipment, and a greater return per acre from winter wheat are largely responsible for the rapid shift from spring to winter wheat the past decade. Remaining areas of springs produced along the "Hiline" (that area on each side of U.S. Highway No. 2 from Cut Bank



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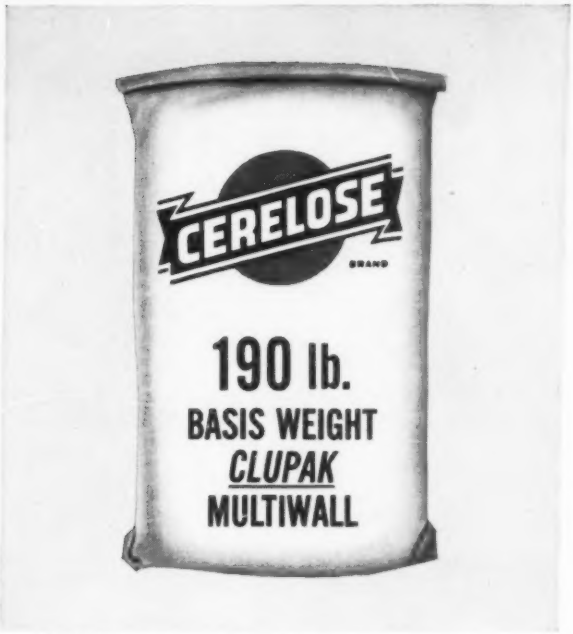

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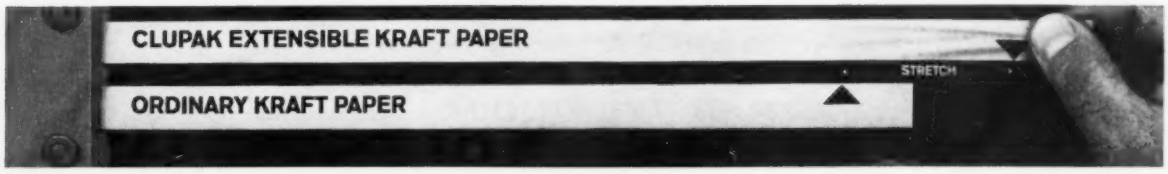

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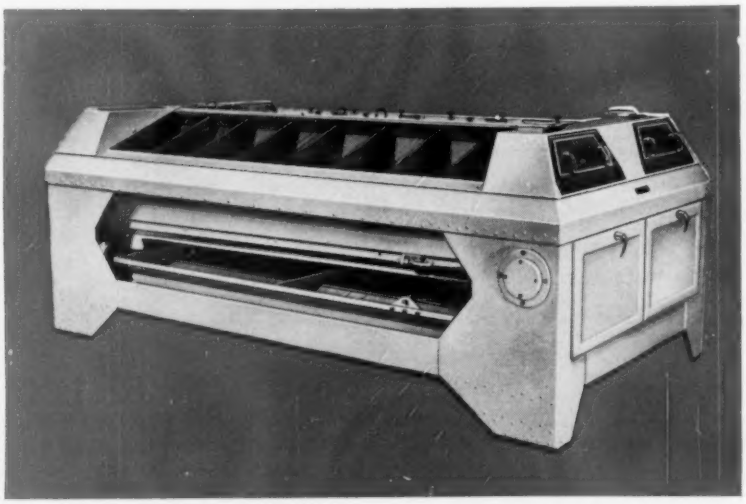

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to Malta) and in eastern counties will continue to shrink if winter wheat can be successfully grown.

Primary objectives of the spring wheat program are: (1) Breeding for resistance to the wheat stem sawfly, the most important insect pest of wheat in Montana; (2) breeding for resistance to leaf and stem rusts. The rusts often reduce yields in eastern Montana, and resistant varieties having satisfactory quality are needed. Some effort is being devoted to producing a stem and leaf rust-resistant variety that is also resistant to sawfly cutting; (3) developing varieties with the "semidwarf" type straw. Short straw will prevent lodging under irrigation, and lodging resistance is associated with a higher yield potential.

Evaluation for quality and agronomic characteristics are integral parts of each primary objective. New wheat selections are evaluated not only for sawfly and rust resistance but also for appeal to the producer, the miller and the baker.

Procedures Explained

New varieties and selections are grown in Montana for several years at experiment stations representing each of the six crop districts (Figure 1). Samples are evaluated for quality by the Cereal Quality Laboratory at Bozeman and the Spring Wheat Quality Laboratory at Beltsville, Md., each year. The most promising selections are then grown in large plots, and flours from the wheats are evaluated by milling company laboratories.

The regular straight-dough baking procedure is inadequate for evaluating relatively strong, high-protein spring wheat flours. Therefore, the Bozeman laboratory also employs a remix straight-dough procedure[1] which is a slight modification of the remix baking test developed by the Grain Research Laboratory at Winnipeg.[2]

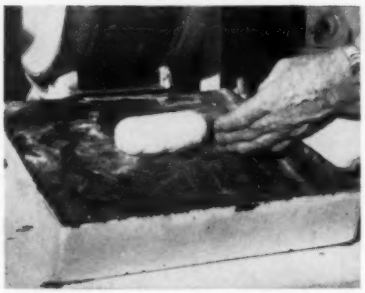
Relative strength of each dough is evaluated at panning when the remix baking procedure is used. Very strong doughs are given a numerical rating of 5 and very weak doughs a rating of 1. Strong doughs are dry, lively, resilient and mold well. (See Figure 2, THE MILLER's cover, photo at the left, and Figure 3, page 25.)

Weak doughs are slack and often sticky at panning. (See Figure 4, THE MILLER's cover picture, photo at the right.) Such doughs mold poorly,

[1]Detailed descriptions of laboratory procedures employed are given in the Annual Progress Reports of the Cereal Quality Laboratory. These reports also contain quality data obtained on individual samples of each variety harvested at several locations in Montana each year. Reports covering samples harvested in 1958 and 1959 may be obtained from the Plant and Soil Science Department, M.S.C., Bozeman.

[2]Irvin, G. N., and McMullan, Marion E.—"The 'Remix' Baking Test," Cereal Chemistry, 37:603-613 (1960).

FIGURE 3



STRONG DOUGH after molding is pictured above. This dough was mixed to optimum development, fermented for 155 min. without punching, remixed, and fermented for an additional 25 min. Strong doughs are dry, lively, resilient, and mold well.

as shown in Figure 5. Available data indicate that the grain and texture scores of strong spring wheat flours may be improved, or may not be altered by remixing. Grain and texture scores of weak flours usually are reduced by remixing.

Final Evaluation

Spring wheat varieties and selections proposed for release as recommended varieties for Montana must be approved by the Montana Agricultural Experiment Station Wheat Research Committee. Suggestions and opinions from research personnel, industry personnel, the Montana Wheat Quality Council at Great Falls, the Crop Quality Council at Minneapolis, and the Pacific Northwest Crop Improvement Assn., Spokane, are considered. Each variety is recommended for a specific district or districts in the state (Figure 1). That varietal recommendations are received favorably by Montana producers is evident from the acreage being devoted to recommended varieties (Table 1).

Characteristics, Recommendations

Varietal characterizations which follow represent a summary of field

FIGURE 5

WEAK DOUGH after molding is shown. Such doughs are slack and often sticky at panning.

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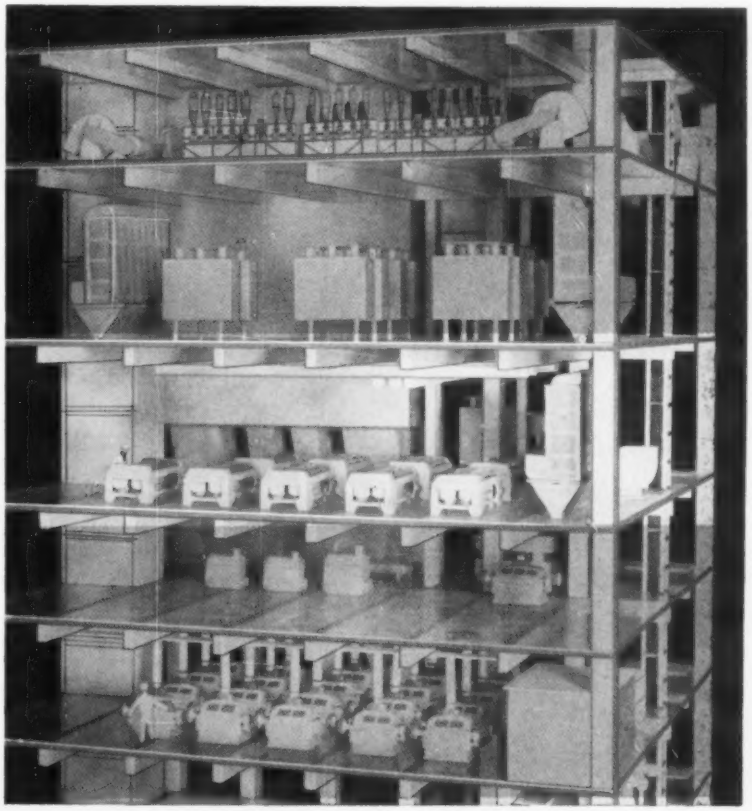

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About the Authors

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Mr. McNeal is agronomist in charge of spring wheat investigations in Montana. He is with the Montana Agricultural Experiment Station, and Crops Research Division, Agricultural Research Service, U.S. Department of Agriculture.

Mr. Potts is wheat quality evaluation supervisor at the Montana Agricultural Experiment Station in Bozeman.

TABLE 1

Percentages of the Total Montana Hard Red Spring Wheat Acreage Planted to Each of the Leading Varieties in 1958, 1959 and 1960; and 1960 Acreages of Leading Hard Red Spring Wheat Varieties in Montana*

Variety	Recommended in Montana	Percentage of total acreage 1958	1959	1960	Acres 1960
Thatcher	yes	37.7	32.5	37.2	740,900
Rescue	yes	25.1	19.6	18.1	360,100
Centana	yes	1.7	13.0	14.4	286,300
Chinook	no	10.2	9.5	10.7	212,300
Ceres	yes	8.3	10.5	6.5	128,900
Selkirk	yes	5.9	4.7	4.6	92,900
Lee	yes	5.4	4.9	4.7	93,200
Miscellaneous varieties	no	5.7	5.3	3.8	76,400
TOTAL		100.0	100.0	100.0	1,991,000

*Information provided by the Montana Crop and Livestock Reporting Service, Aug. 2, 1960.

data obtained during the past 10 years. The discussion of milling and baking quality is a summary of data obtained for each variety during the past 3 years (Table 2). Because Thatcher is widely distributed with well-defined characteristics, field performance of all varieties has been compared with that of Thatcher. However, the superior quality of Ceres makes it the logical choice as a standard of comparison for milling and baking characteristics.

The farinograms of flours milled from varieties harvested at Sidney in 1959 (Figure 6) are typical of those obtained during the three-year period. Average milling, farinograph and baking data for varieties harvested at each of the six experiment stations in 1960 are shown in Table 3. In Tables 2 and 3 the varieties are arranged in order of decreasing farinograph stability values.

Thatcher is recommended in all districts of the state. Field performance has made it a favorite with many producers, maintaining it for many years as the leading spring wheat variety in Montana. Desirable agronomic features of Thatcher are early maturity, high yield, lodging and shatter resistance.

The over-all quality of Thatcher is not equal to that of Ceres, Centana or Sawtana. Test weight is slightly below average, and the wheat produces an average or slightly - below - average yield of high-ash flour. Flour protein content of Thatcher is high; water absorption is average; mixing requirement is medium-long; and the doughs are mellow-strong. When baked by the regular procedure, loaf volume, grain and texture scores are excellent. When remixed, loaf volumes and grain and texture scores are reduced.

Rescue has ranked next to Thatch-

TABLE 2

Average Milling, Farinograph, and Baking Data for Varieties Harvested at Six Locations in Montana in 1958, Five Locations in 1959, and Six Locations in 1960

	Milling				Farinograph		Baking					
								Regular procedure		Remix procedure		
Variety	Test weight lb./bu.	Flour yield %	Flour ash* %	Flour protein* %	Peak min.	Stability min.	Absorption* %	Loaf volume cc.	Grain & texture	Loaf volume cc.	Grain & texture	Dough at pan†
Ceres	59.4	70.0	.48	14.7	7.6	11.8	67.7	973	88	913	88	3.6
Rescue	58.6	70.4	.48	14.9	7.4	11.3	62.4	986	88	936	87	3.6
Centana	59.0	69.1	.48	15.0	7.1	10.4	64.4	998	86	960	88	3.5
Sawtana	59.4	71.9	.48	14.7	7.2	9.7	64.0	958	89	911	87	3.5
Selkirk	56.1	72.5	.48	14.6	6.2	8.7	64.4	943	89	888	86	3.4
Thatcher	57.6	69.2	.50	15.6	6.4	7.6	64.6	971	89	950	86	3.3
Lee	58.5	67.3	.50	15.5	5.1	5.3	65.8	932	87	893	82	2.6

†Very strong = 5; very weak = 1.
*14% moisture basis.

TABLE 3

Average Milling, Farinograph and Baking Data for Varieties Harvested at Each of the Six Montana Experiment Stations in 1960

	Milling				Farinograph		Baking					
								Regular procedure		Remix procedure		
Variety	Test weight lb./bu.	Flour yield %	Flour ash* %	Flour protein* %	Peak min.	Stability min.	Absorption* %	Loaf volume cc.	Grain & texture	Loaf volume cc.	Grain & texture	Dough at pan†
Ceres	58.2	67.5	.50	14.7	7.4	13.0	67.8	1021	90	870	86	3.3
Rescue	56.8	68.8	.53	15.4	6.6	12.3	64.2	1028	89	914	85	3.3
Centana	56.0	67.4	.51	15.5	6.8	11.5	64.8	1062	87	935	87	3.6
Canthatch	56.9	67.3	.50	15.3	6.4	11.0	66.0	958	90	908	85	3.2
Sawtana	57.8	69.3	.52	15.1	6.5	9.8	65.1	986	91	881	86	3.2
Thatcher	55.6	66.4	.55	16.0	6.2	9.6	66.0	996	88	933	80	3 0
Selkirk	53.8	70.8	.53	14.9	5.7	9.3	65.2	973	88	889	83	3.2
Lee	57.3	63.9	.52	15.5	4.8	6.9	66.6	913	87	850	76	2.6

†Very strong = 5; very weak = 1.
*14% moisture basis.

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Montana Spring Wheat (Continued)

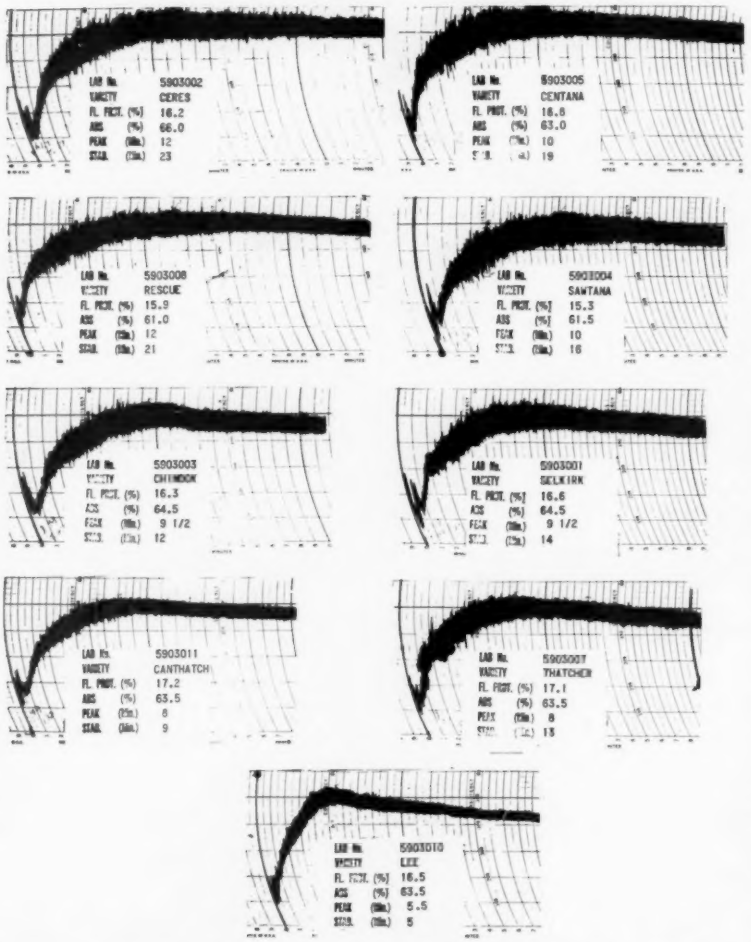
er for several years in the number of acres grown. Some reduction occurred in 1959 and 1960, probably because of the rapid increase in Centana acreage. Rescue has good test weight, but its yield is not equal to that of Thatcher. The important field characteristic of Rescue is its solid stem, which provides resistance to the wheat stem sawfly. Rescue is recommended for sawfly infested areas of districts 4, 5, and 6.

Water absorption of Rescue is lower than that of any other spring wheat variety recommended in Montana. All other milling and baking properties of this variety have equalled those of Ceres and Centana.

Centana was recommended for central Montana in the spring of 1958. By 1960, some 286,000 acres of this variety were grown. Like Thatcher, Centana is now recommended in all districts of the state. It has better yield and test weight than Thatcher, lacks resistance to rust and sawfly, and is 2-3 days later in maturity than Thatcher.

Centana ranks near Ceres in over-all quality. It produces flour with acceptable ash. However, flour yields are average or slightly below. Flour protein content is average and absorption good. Centana has a long mixing requirement and produces strong doughs that are not damaged by severe remixing. Loaf volumes have generally exceeded those of the other spring wheat varieties when baked by either procedure. Grain and texture scores are below average by the regular procedure, but above average by the remix method. Lower grain and texture scores obtained by the regular procedure are probably a result of the large loaf volumes of Centana.

FIGURE 6



HERE ARE FARINOGRAMS of flours milled from wheats harvested at Sidney, Mont., in 1959. With the exception that curves of Thatcher are often weaker than those of Canthatch, these curves are typical of those obtained from samples harvested in 1958, 1959 and 1960.

Chinook is not recommended in Montana, but seed has been shipped in from Canada, where it is used by some growers in preference to Rescue to control wheat stem sawfly. A higher test weight is the only advantage Chinook has exhibited over Rescue in Montana field trials. It is less resistant to sawfly cutting than Rescue and has no yield advantage.

Chinook was not included in the 1960 field trials. Therefore, quality data for it are not included in Tables 2 and 3. Previous tests indicate that Chinook ranks below Ceres and Centana in over-all quality. It produces average yields of flour which are slightly below average in ash content. Chinook has high flour protein, good water absorption and a long mixing requirement. The doughs are strong and produce acceptable loaf volumes with good grain and texture when baked by either procedure. However, loaf volumes are considerably less than those of Ceres, Centana, Rescue and Sawtana.

Ceres has been grown in Montana since 1926, making it the oldest recommended variety. It is still recommended in all areas of the state except District 6. Ceres is susceptible to rust and sawfly, but many growers believe it to be more drouth-tolerant than other varieties. It has weak straw, but yield and test weight are good.

Ceres ranks first in over-all milling and baking quality. It produces a good yield of medium-ash flour. Flour protein is average; water absorption is outstanding; and mixing requirement equals or exceeds that of all other varieties. Ceres doughs are strong and not damaged by severe remixing. Loaf volumes and grain and texture scores are satisfactory by the regular and remix baking procedures.

Lee has been recommended since 1953 in Districts 3 and 6 for its leaf rust resistance. The yield has been satisfactory, but it has only fair milling and baking qualities and should be replaced as soon as a suitable new variety is available.

Although test weight is average or above, Lee produces a low yield of high-ash flour. Flour protein content is high, and water absorption is exceeded only by that of Ceres. Mixing requirement and dough strength fall well below those expected of a spring

wheat variety. When baked by the regular non-abusive procedure, loaf volumes, grain and texture scores are acceptable. However, when remixed, the doughs become slack and sticky and produce smaller loaves having inferior grain and texture. Lee seems to have an unusually high oxidation requirement.

Selkirk is recommended in District 6 for its stem rust resistance. It is early, but susceptible to shattering. In Montana, field performance of Selkirk is mediocre in the absence of rust. A high quality variety with leaf and stem rust resistance is needed as a replacement for both Lee and Selkirk in eastern Montana.

Quality-wise, Selkirk has several good features, but it cannot be classified with Ceres, Centana and Sawtana. Although test weight is well below that of the other spring wheat varieties, Selkirk produces high yields of medium-ash flour. Protein content and water absorption are average. Mixing requirement is long, and the doughs are strong. It produces loaves with acceptable volume and good grain and texture when baked by the regular procedure. When remixed, loaf volumes and grain texture scores are reduced, and the doughs often rank below Ceres, Centana and Rescue in strength. Selkirk also seems to have a high oxidation requirement.

Sawtana, a sawfly resistant variety released in 1961, is expected to yield better and produce higher test weight grain than Rescue. This variety has been approved by the Crop Quality Council and the Montana Wheat Quality Council as a replacement for Rescue. Most of the Sawtana produced during the next two years will be used for seed. Therefore, this variety will not be of commercial importance until 1963 or 1964.

The over-all quality of Sawtana is equal or superior to that of the other sawfly resistant varieties (Rescue and Chinook). Milling characteristics are outstanding, and it produces a high yield of medium-ash flour. Flour protein is average, but flour absorption is a great improvement over that of Rescue. Sawtana has a long mixing requirement and strong dough characteristics. When baked by the regular procedure, loaf volumes and grain and texture scores are excellent. When remixed, loaf volumes and grain and texture scores decrease slightly.

Miscellaneous spring wheat varieties being grown by Montana farmers include Marquis, Saunders, Canthatch, Rushmore, Mida and Pilot. None are presently recommended, although Marquis and Pilot were both on the recommended list at one time. Seed of Rushmore has been brought in from South Dakota and seed of Mida from North Dakota, where these varieties originated. They are grown on limited acreages in Montana.

Canthatch has been released in Canada as an improved Thatcher, and seed will no doubt move across the border into Montana. Canthatch was not tested by the Montana laboratory before 1959. However, quality data obtained on samples harvested in 1959 and 1960 indicate that Canthatch is very similar to Thatcher in quality, and it appears to exceed Thatcher in dough strength. «

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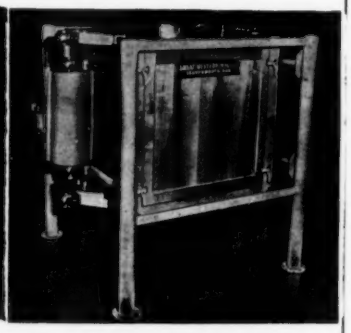

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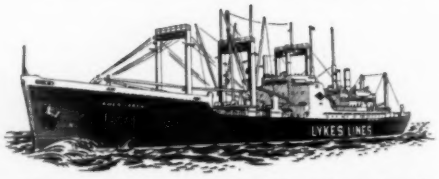

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PEACE CORPS VOLUNTEER

Son of Bemis Bro. Executive Given Assignment to Colombia

MINA SENNOTT, distinguished editor of the award-winning Bemistory, publication for the employees of the Bemis Bro. Bag Co., tells of a "rewarding and exciting experience" in a recent issue of the magazine. It was a visit with young—24—Chuck Akin, son of Bemis' executive vice president, C. W. Akin, and one of the first volunteers to be chosen for the Peace Corps. Here is the story as Miss Sennott tells it, published by special permission of the writer:

Chuck was graduated in June from the University of Minnesota with a bachelor's degree in international relations. He was already enrolled in the graduate school, preparing for a career in the foreign service, when the Peace Corps appointment came. His college work stressed foreign language and he speaks French and Spanish fluently, knows German fairly well and has studied Russian and Portuguese.

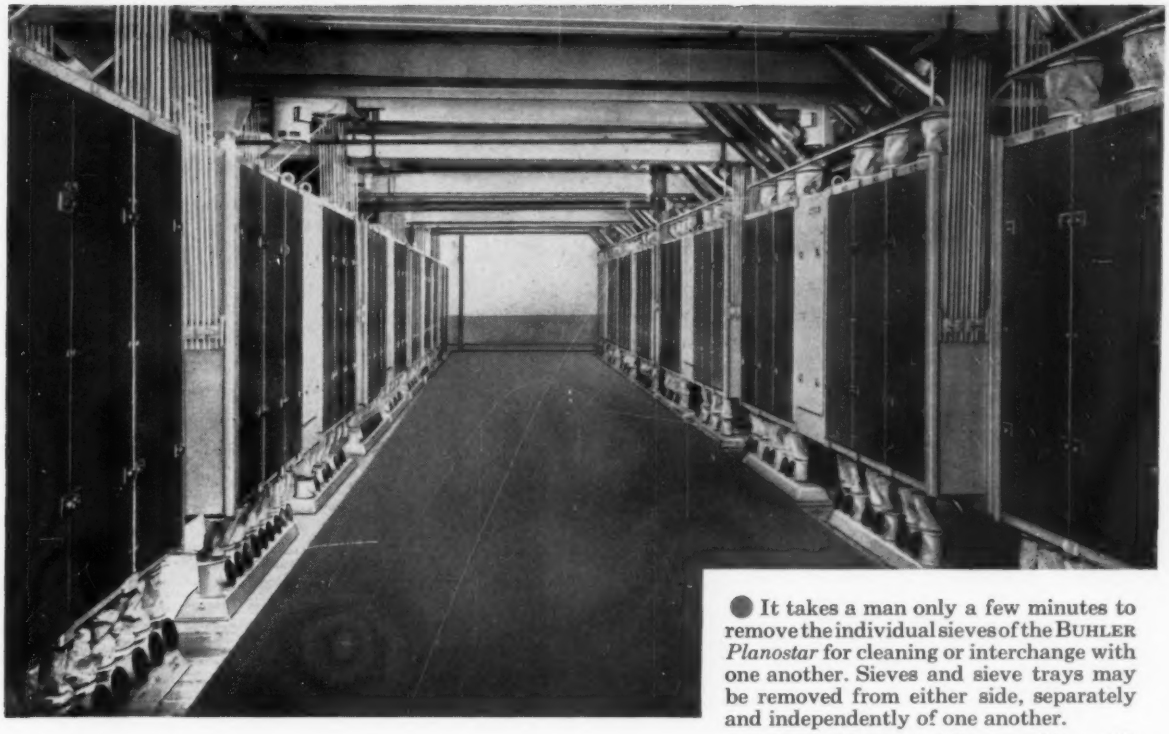
Chuck Akin

Along with 63 other volunteers who were selected to go to Colombia, South America, Chuck is now undergoing screening and training at Rutgers University in New Jersey. For two years between his sophomore and junior years, he traveled and worked in Europe, Central America, Mexico and Puerto Rico. This experience, he says, taught him the importance of knowing a language if one is to understand the other peoples of the world and their problems.

Chuck brings other abilities and skills to his Peace Corps assignment besides his language training. While a high school student in St. Louis County when the family was living there, he worked summers in an auto repair shop and with a construction company. He learned how to weld, to repair motors of all kinds, to handle tools and much about basic construction. He expects these practical skills to stand him in good stead, too, on his team assignment in Colombia.

The volunteer teams assigned to Colombia will scatter throughout the country to teach people in villages what to do in building roads, schools, small farm buildings and sanitation facilities. The Colombian project is being administered by CARE, the organization that provides relief and rehabilitation programs in the world's distressed areas.

Chuck explained that projects for the Peace Corps volunteers are suggested by the country to which they are assigned. The U.S. government does not go out and say "We are sending this team to help you do thus and so." The purpose of the Corps is not to spread the American way of life or just to help fight communism. It does give people of the U.S. a chance to help peoples of other countries. It is a sharing of skills and ideas in carrying out projects between young people of the U.S. and foreign countries so that they can come to understand each other better. «



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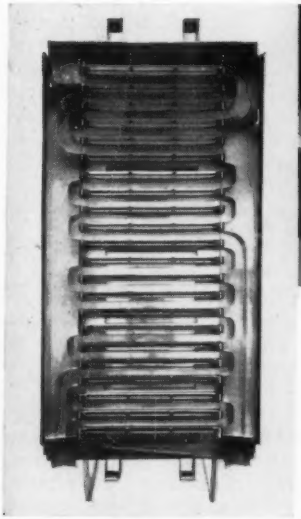

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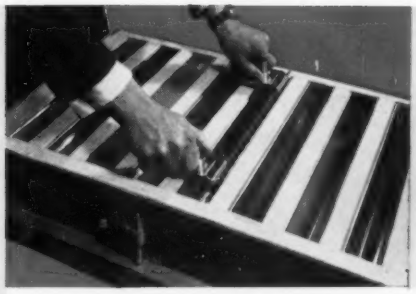

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A Milling Technology Feature

Technology of the Production of Increased Starch Damage in Flour Milling

Factors in Individual Reductions

By C. R. Jones, E. N. Greer, J. Thomlinson and G. J. Baker

RECENT RECOMMENDATIONS to increase starch damage in flour, in order to raise water absorption, have prompted the thought that information contained in a series of pre-war reports* to members of the Research Association of British Flour Millers may be of general interest.

A paper by one of us in 1940[4] which made no reference to, or merely summarized, many of the practical points from those reports, offered the suggestion that differences in maltose figure† between stocks milled from a given wheat are a measure of differences in the proportions of starch granules damaged (converted into "ghosts") during milling.

Some data supporting this suggestion were published shortly afterwards by Dadswell and Wragge,[1] and, later, by Dubois,[2] who also confirmed the finding that an addition of fragments of bran and outer endosperm to a flour does not cause an increase in its maltose figure.

This apparently contradicts the finding of Engel[3] that the outer layer of endosperm in the grain is particularly rich in β-amylase. Dubois explained this on the basis that the endosperm as a whole generally contains sufficient β-amylase to meet all ordinary requirements; additions of this enzyme therefore have negligible effect.

Sullivan et al.[6] found, with a given flour ground to varying degrees of fineness in a particular form of apparatus, a log linear relation between specific surface and maltose figure or gassing power. The relation varied with different types of grinding, due, they suggested, to independent effects of fineness and of starch damage on maltose figure and gassing power. Their report indicates, however, that some of the starch granules showed a type of damage (radial cracking) not commonly found in roller-milled flour. In our experience, starch granules damaged by grinding, whether with rolls or with a (Kek) pinned-disc mill,[5] have mainly been "ghosts" (as previously described[4]) and changes in maltose figure have generally been explicable on the basis of differences in contents of "ghosts," irrespective of differences in fineness of the samples.

The technological information in the 1940 paper[4] may be briefly summarized as follows:

In a break roll grind, the content of damaged starch is small in the coarser particles of endosperm but increases fairly markedly on passing to the break flour. When, however, the particles coarser than the flour are subsequently reduced, ghosts are produced to extents varying with the sizes of the particles. In the production of ghosts, internal and surface factors operate to varying extents. The internal factor is the strain set up within an endosperm particle which is flattened but not disintegrated by the reduction rolls; as a result, the starch granules within it, or within parts of it, are converted into ghosts. This causes the maltose figure of the coarser fractions of the resultant grind to be relatively high, while that of the intermediate fraction (dunst), which has not undergone this type of strain, is low.‡ The heavier the roll pressure and the coarser the fraction, the higher becomes the maltose figure.

Thus, when various releases were obtained from portions of semolina (from a mixed grist) fed to smooth (A reduction) rolls, the coarsest fraction of the grind (over 5 silk) varied in maltose figure to the considerable extent shown below, whereas the flour (A roll flour) did not fall outside the range 1.16-1.36:

	%	%	%	%
Release of flour ..	12	18	24	40
Coarse fraction, maltose	0.70	1.50	1.66	2.26

For other instances, see[4] Table IV.

In general, the "ghosts" in the incompletely reduced particles (tails and dunst) are released, together with newly produced "ghosts," when these particles form the feed to a later reduction; as a result, the flour then produced has a relatively high maltose figure. The relatively very high maltose figures of flour and other stock from the later reductions were ascribed solely to these successive formations of "ghosts."[4]

Thus, the maltose figure of flour

*Nos. 28, 30, 31, 32, 37, 41 and 43 issued between 1934 and 1939 (inclusive).

†Throughout this paper, the maltose figures are shown as recorded in the pre-war reports referred to. They were obtained by means of the Rumsey-Kent-Jones method as used pre-war[6] and, if multiplied by 1.5, correspond roughly with values that would have been obtained by the Blish and Sandstedt method now generally used. Incidentally, with flours or stocks milled from a given wheat, maltose figures have been found to be very closely additive.

‡Spillane[7] subsequently found this feature of the intermediate fraction, more particularly the fine dunst or very coarse part of the flour, important in relation to the baking of Irish soda-bread.

The authors of this paper are with the Research Association of British Flour Millers, St. Albans, England, and have made many noteworthy contributions to milling technology. The article was originally published in Milling of Liverpool and the cooperation of the editor of that publication in preparing the material for publication in THE MILLER is appreciated. In a subsequent issue, the authors will deal with reduction in succession, the break system and baking and gas tests.

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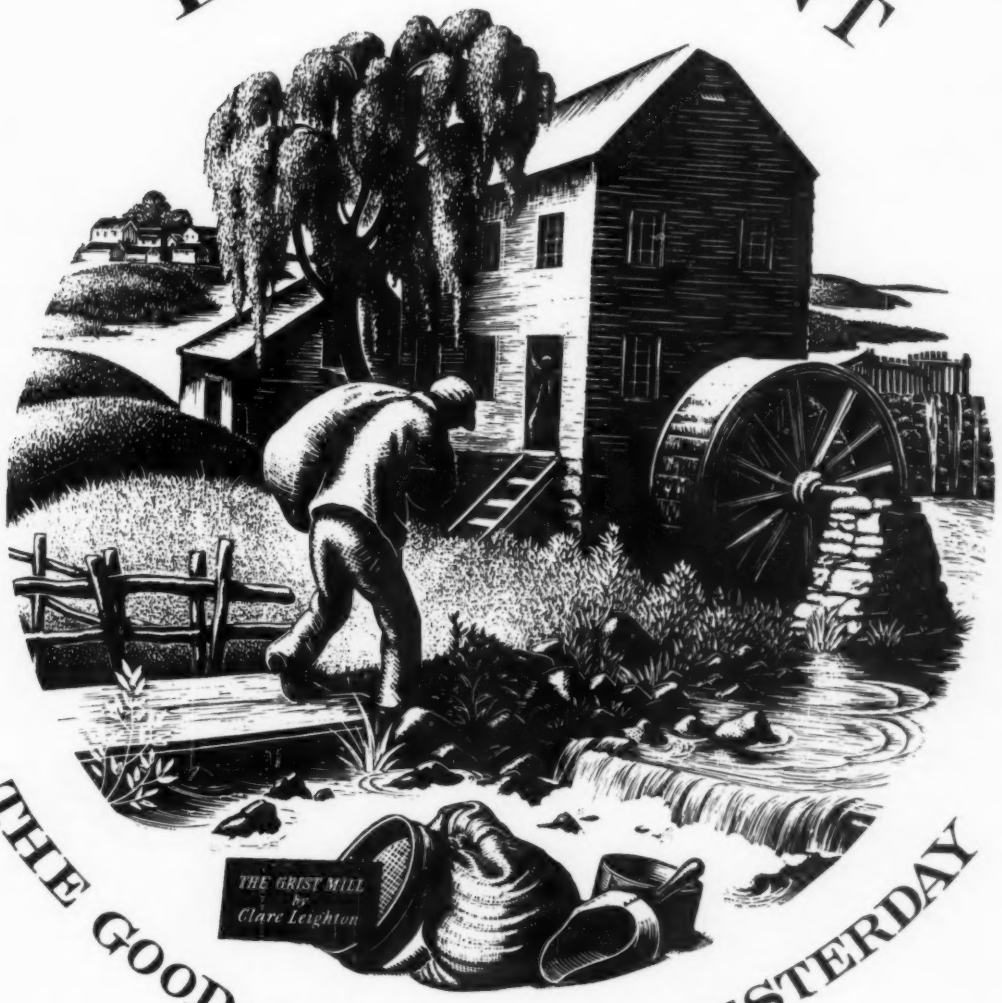

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from a particular rolling depends on:

1. The maltose figure of the roll feed (which depends on its previous history); it is never less than this.
2. Factors acting collectively, during the particular rolling, in determining the maltose figure increment between the feed and the flour sifted from the grind.

Flour Release the Criterion of Rolling Pressure

In these considerations, the practical measure of rolling pressure is release of flour. Experience with laboratory milling showed that, in their effect on the grind, rate of feed and rolling pressure are inversely related (see also[5]). If the rate of feed is unchanged as the rolling pressure is increased, it follows, from the results already cited, that the release of flour is increased, the production of damaged starch being increased correspondingly.

If, conversely, the pressure remains unchanged while rate of feed is decreased, similar changes in release and starch damaged may be produced. It follows that by increasing both pressure and feed, so that release remains unchanged, the amount of starch damage (as reflected by maltose figures of the various sifted fractions) should be unaffected. This is confirmed by the results in Table 1 for tests in which the release of A roll flour was maintained at about 19% by means of suitable pressure adjustments, despite marked changes in rate of feed above and below the rate corresponding to normal British commercial practice.

Effect of Flaking and of Moisture Content of Feed

For any given stock and pair of reduction rolls, therefore, flour release governs starch damage production, particularly in the coarser fractions, provided that flake production has not occurred to any abnormal extent. Flakes, particularly those resulting from "ringing," often contain high proportions of "ghosts." This is shown by the results in Table 2, for sub-samples of middlings adjusted to three different moisture contents, the first shown (14%) being that normally employed with the type of wheat in question (Argentinian Plate). At the two lower moisture contents, the amount of flaking was negligible, but, at the highest, it was increased tenfold and the maltose figure of this material was very high.

TABLE 2

Proportions* and maltose figures (in parentheses) of flours obtained from three successive reductions (as in commercial C, D and E; 2nd, 3rd and 4th midds. reductions) of sub-samples of fine middlings at three different moisture contents.

Moisture feed to C.	Flour C	Flour D	Flour E	Total C,D, E	Flaked flour†
%					
14	62	24	7	93	..
	(1.13)	(1.67)	(2.19)	(1.35)	..
15.5	43	20	18	81	3
	(1.24)	(1.66)	(2.06)	(1.53)	(5.07)
12	59	23	10	92	..
	(1.11)	(1.46)	(2.12)	(1.31)	..

*Expressed as percentage of weight of middlings fed to the first of the reductions studied.

†In form of coarse overtails.

Change in moisture content in the roll feed had little direct influence on the extent of damaged starch production during rolling. However, at the highest moisture content, the maltose figure of the total flour was increased because, owing to a reduction in bolting efficiency, more of the total flour passed through the later reductions where the effect on maltose figure was greatest.

Characteristics of Coarse Particle (A) Reduction: (i) Differential

The increment for A roll flour, being governed largely by the surface (scraping) factor (4), is affected—in contrast to that of the coarsest part of the grind—mainly by the nature of the roll surface and the differential speed of the rolls, and only slightly by change in rolling pressure. Data previously given (4) related to the use of smooth, and of coarse matt, rolls, at two differentials. Table 3A shows results of further experiments on portions of coarse semolina (sizings) fed to smooth and corrugated rolls, respectively, driven at various differential speeds; the corrugated rolls had 80 cuts per inch with a 5° spirality. The roll diameters were 6 inches, and the radial and peripheral speeds of the fast rolls about 420 r.p.m. and 650 ft./min. The rolling pressures were adjusted to give as nearly as possible the same release of flour in each test.

At the ordinary (British) reduction

TABLE 1

Results of laboratory A (sizings) roll grinding tests in which both rate of feed and rolling pressure were increased but maintained in balance as to effect on flour release. Maltose figures of the sifted fractions are shown in parentheses beneath the corresponding figures for proportions by weight.

Rate of feed (lb./hour/inch)	Percentage of grind: over 24 wire	over 32 g.g.	over 1's	over 5's	over 10's	thru 10's
25.5	6	10	17	16.5	31	19.5
			(1.75)	(1.16)	(0.90)	(1.61)
12.7*	5.4	9	16	17	33	19
			(1.66)	(1.12)	(0.87)	(1.52)
8.7	5.4	9.5	17	18.5	31.5	18.4
			(1.70)	(1.08)	(0.90)	(1.54)

*Approximately the normal British commercial rate of feed.

TABLE 3A

The effect* of using rolls with different surfaces at various differentials on "A" (sizings) reduction†

Type of surface	Differential	Percentage of grind: over 24 wire	over 32 g.g.	over 1's	over 5's	over 10's	thru 10's	Ash in flour, %
Smooth	1.25	2.4	5.6	12.4	18.1	41.6	20.1	0.48
			(2.36)	(1.75)	(1.12)	(0.82)	(1.48)	
Smooth	1.6	1.4	4.0	10.2	18.7	46.3	19.4	0.49
			(2.22)	(1.67)	(1.06)	(0.82)	(1.70)	
Smooth	2.1	0.4	3.7	14.0	17.0	48.5	20.8	0.47
			(2.26)	(1.77)	(1.15)	(0.90)	(2.05)	
Smooth	2.6	1.3	3.3	8.1	16.0	51.6	19.7	0.49
			(2.09)	(1.74)	(1.14)	(0.89)	(2.24)	
Smooth	3.3	1.4	3.5	7.5	14.9	51.9	20.8	0.48
			(2.16)	(1.89)	(1.22)	(0.95)	(2.53)	
Corrugated‡	1.25	0.1	3.4	7.8	17.2	48.0	22.8	0.48
			(2.14)	(1.55)	(1.19)	(1.26)	(1.70)	
Corrugated	1.6	0.5	2.6	6.6	18.7	51.5	20.0	0.51
			(2.08)	(1.49)	(0.88)	(0.83)	(2.26)	
Corrugated	2.1	0.6	2.7	7.7	20.2	50.5	19.0	0.54
			(2.32)	(1.54)	(0.94)	(0.94)	(2.96)	
Corrugated	2.6	0.4	2.3	7.4	18.6	51.2	20.0	0.54
			(2.34)	(1.55)	(0.97)	(1.03)	(3.41)	
Corrugated	3.3	0.6	2.4	8.5	19.7	49.3	19.4	0.55
			(2.02)	(1.41)	(0.91)	(1.00)	(4.05)	

*Data expressed on 14% moisture basis.

†Maltose figures are in parentheses under the corresponding figures for proportions by weight of the particular fractions obtained by sieving.

‡80 corrugations per inch.

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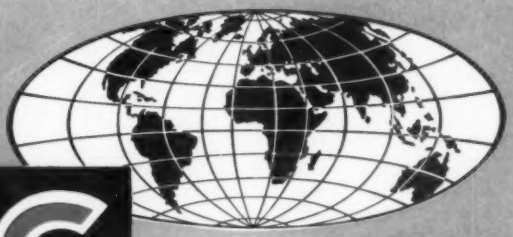

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Starch Damage (Continued)

differential (1¼), the maltose figure of the A roll flour was slightly higher with the corrugated than with the smooth rolls. While the effect of increase in differential was considerable with the smooth rolls, it was markedly greater with the corrugated. The effects could be represented by means of smooth curves (Fig. 1); the rate of increase in maltose figure with increase in differential decreased at higher differentials.

Maltose figures of fractions of the A grind, coarser than those through No. 1 silk, tend to be lower with corrugated than smooth rolls particularly at flour releases higher than those shown in Table 3A. At 1¼ differential, the corrugated roll grind contains fewer endosperm flakes, and a higher proportion of dunst, than the grind from the smooth rolls; furthermore the pieces of germ and bran are less flattened and the bran pieces are freer from adherent endosperm.

Other experiments, both with smooth and corrugated rolls, showed that the maltose figure of the A flour fell slightly with increasing pressure on A rolls. With the corrugated rolls the increase in quantity and in maltose figure of the coarser fractions, caused by the entry of endosperm flakes, was less than with the smooth; the coarser fractions from the corrugated rolls consisted almost only of germ and clean bran fragments.

With increasing differential, both with smooth and corrugated rolls, the proportions of flattened particles in the coarser fractions of the grind decreased and the proportion of dunst to flour rose markedly. These changes were rapid from 1.25 to 2, but slight thereafter.

The maltose figures of the coarser fractions were not appreciably affected through increase in differential, provided that the release of flour was kept constant. Increase in **differential**, without change in release, in A reduction should therefore not cause rises in maltose figures in later reduction flours comparable with those caused by increasing the **pressure** on A roll. Irrespective of the choice of differential, if the pressure (and therefore the release) is increased, the maltose figures of the coarser fractions of the A grind, and consequently those of later reduction flours will be markedly raised.

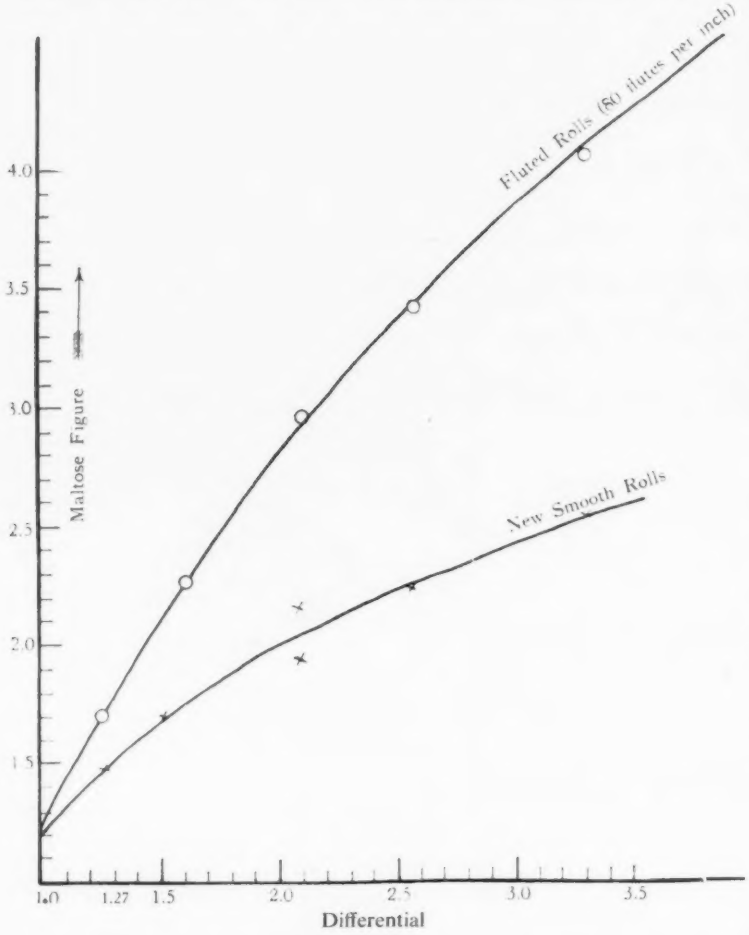

Fig. 1—Relation between roll differential, with fluted (corrugated) and with smooth A (sizings) reduction rolls, and the maltose figure of the A roll flour produced from a given wheat mixture.

Practicability of Higher Differentials

Smooth and corrugated rolls differ markedly in suitability for use at high differentials. Experiments with smooth rolls at differentials much above 2 were not promising. Thus, at 3.3 the reduction resulted from attrition rather than from pressure (little flaking occurring) and power consumption was relatively great. The rolling pressure required to obtain a flour release of 20% was much greater than at lower differentials, though it was deduced, from the trends in the maltose figures and the appearance of the coarser fractions, that the crushing force exerted on the stock was smaller. Corrugated rolls, on the other hand, appear to cut rather than crush, and to reduce more easily the higher the differential; unfortunately the extent of bran comminution is also increased, as indicated by the ash figures in Table 3A.

With smooth rolls, smaller increases in differential are quite practicable; at 1.6, mechanical operation appeared easy and, in some respects other than maltose figure, the effect was improved.* Moreover, with smooth rolls, color and ash content of the flour were not affected through change in differential. While the substitution of rolls with 80 corrugations per inch for smooth, at 1.25 differential on A reduction, caused no appreciable increase in ash content of A flour, their successful use at higher differentials would clearly depend on high purity in the roll feed.

Coarse Particle Reduction: (ii) Roll Surface

Experiments were made with each of the types of A roll surface numbered 1-5 in Table 3B. For each, the typical increments in maltose figure, from the A roll feed (derived from a mixed grist) to the flour sifted from

*The usual reduction differential is 1.5 in North America as against 1.25 in Britain.

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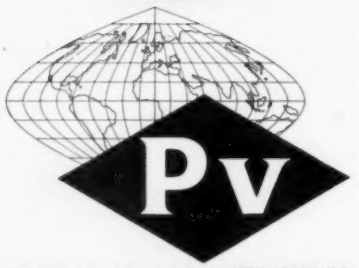

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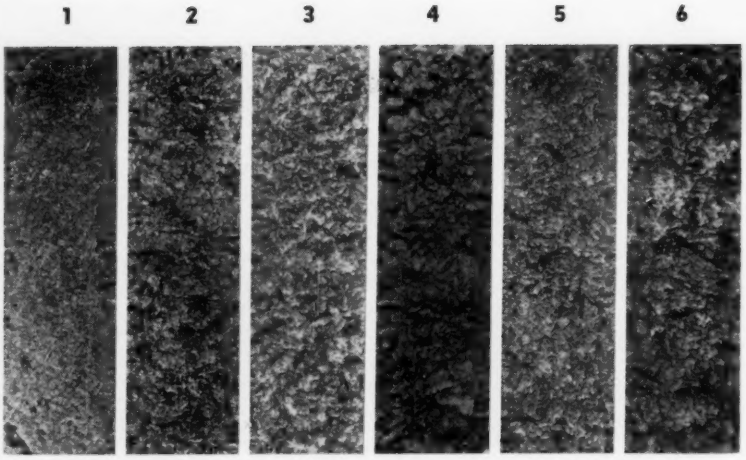

Fig. 2—Photomicrographs (x38) of reduction roll surfaces producing the various maltose figure increments shown in Table 3B. The correspondence between the numbers shown above and those in Table 3B is:

No. above	**1**	**2**	**3**	**4**	**5**	**6**
No. in Table 3B	**1**	**2**	**4**	**5**	**6**	**7**

the grind, are shown. The types of surface numbered 4 and 5 were applied by milling engineers to worn rolls (initially smooth); No. 5 proved not to be very durable. Items Nos. 6-8 relate to commercial rolls that had become roughened through prolonged wear. These rolls had been operating satisfactorily, generally; the worn nature of the surfaces only came to light when an investigation of the grind happened to reveal a relatively high maltose figure increment.

In the case of No. 8, the straight run flour had been showing a high damaged starch content. At that time (pre-war) this was undesirable because it increased the danger of "gumminess" in the bread, resulting from the prevalence of sprouted wheat and the consequent excessive alpha-amylolytic activity in the flour. Following upon the investigation, the reduction rolls in Mill C were re-buffed, with the result shown against Item 9.

These commercial roll surfaces, particularly No. 8, showed clearly visible pitting. In the cases of items 1, 2 and 4-7 inclusive, the surfaces were examined systematically under binocular magnification (x32) and represen-

(Continued on page 45)

TABLE 3B

Differences between maltose figure increments* characteristic of various A roll surfaces compared with differences in proportions of the roll surface areas represented by the pitted areas.

Item No.	Type or roll surface	Mean area of individual pits (sq. mm.)	Proportion (P) of area pitted (%)	D_1 additional proportion of pitted area	Maltose figure increment	D_2 additional malt. fig. increment	Ratio D_1/D_2
	Laboratory Rolls†						
1	Smooth roll	0.003	5	0	0.7	0	..
2	As 1, but roughened through use..	0.025	10	5	1.0	0.3	17
3	Corrugated (80 cuts)	..	..	..	1.0	..	..
4	Fine matt.	0.012	20	15	1.2	0.5	30
5	Coarse matt.	0.025	30	25	1.7	1.0	25
	Commercial Rolls‡						
6	From mill A	0.006	12	7	1.2	0.3	18
7	From mill B	0.022	17	12	1.4	0.7	17
8	From mill C before resurfacing.	..	..	..	1.4-1.8	..	..
9	From mill C after resurfacing	..	..	..	1.0-1.2	..	..

*Differences between maltose figures of feed to roll and of flour sifted from grind made by the roll.

†Roll diameter about 6 inches.

‡Roll diameter about 10 inches.

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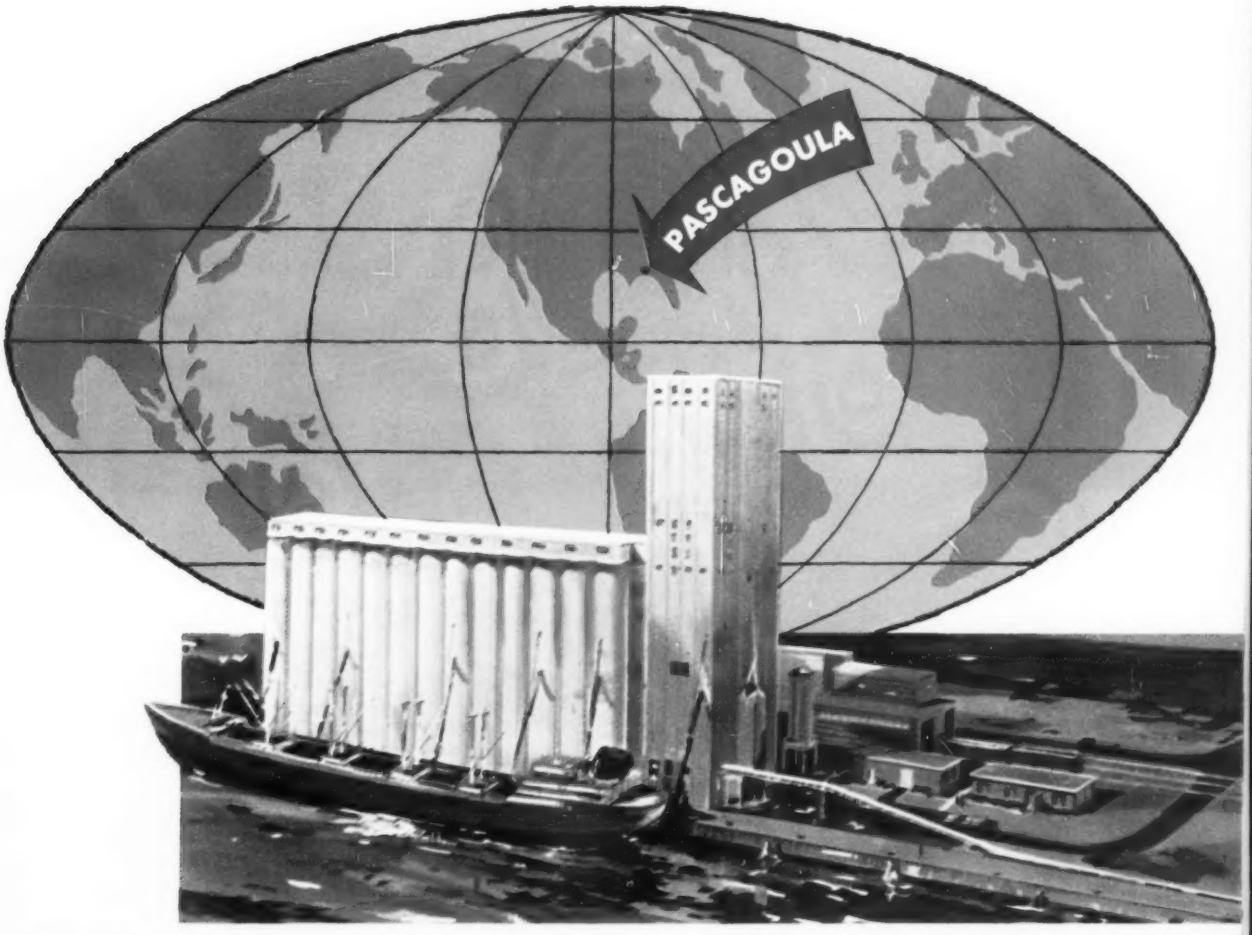

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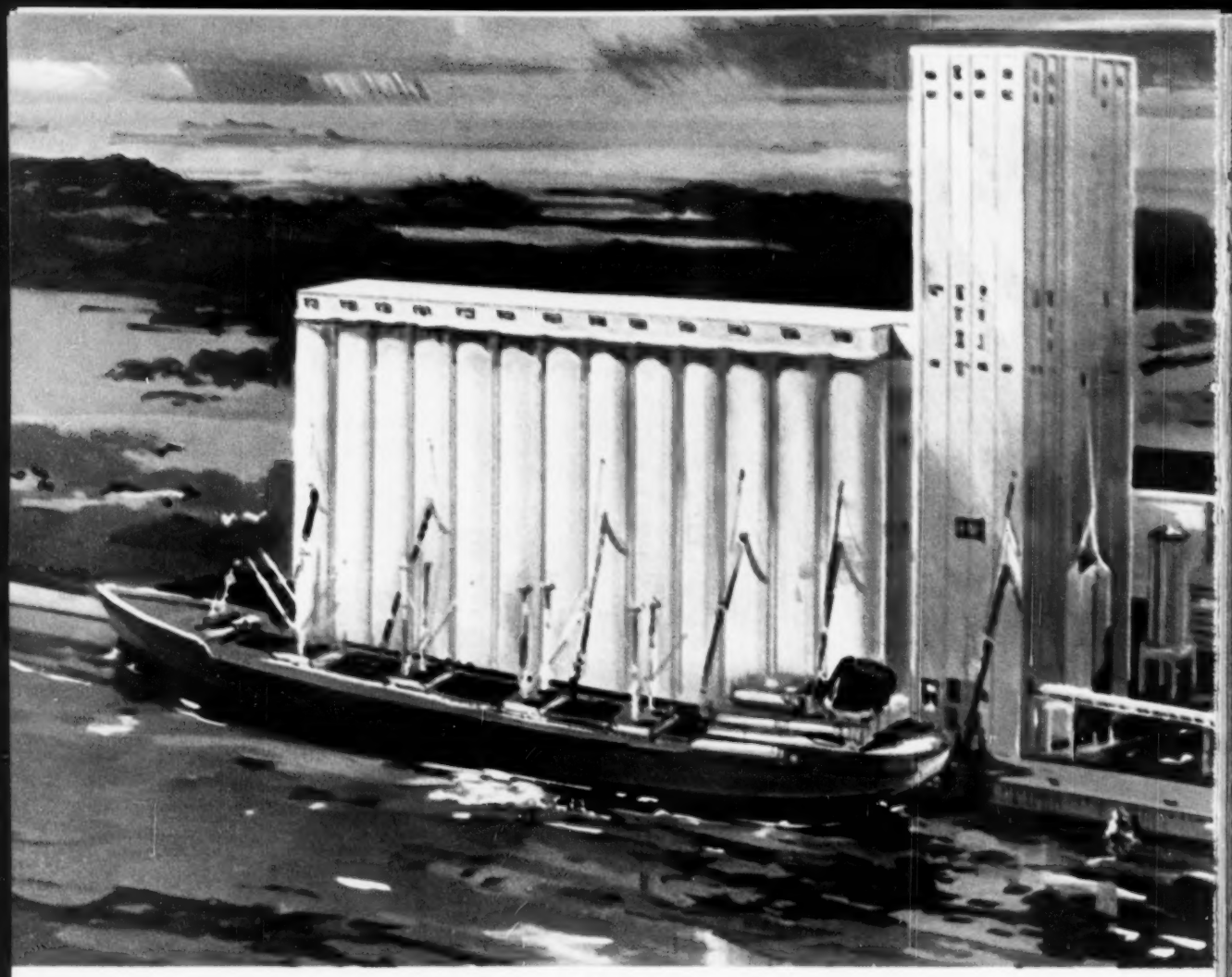

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tative areas were photomicrographed. Fig. 2 shows examples of the photomicrographs.

The examination under magnification revealed that the laboratory "smooth" roll surface in fact contained numerous small pits (resulting from some two years' use). From the photomicrographs, rough estimates were made of the mean areas of the individual pits and of the number of pits occurring in unit area of roll surface and, thus, of the proportion (P,%) of the total roll surface occupied by pits. These values are shown in Table 3B.

The two penultimate columns show values for: D_1, the difference between the value of P for the given surface and that for the smooth roll (Item No. 1); D_2, the difference between the maltose figure increment for the given surface and that for the smooth. The last column, showing the ratios: D_1/D_2, affords evidence that the maltose figure increment is closely related to the proportion of the roll surface area occupied by pitting.

Other experience showed that different roll surfaces produced specific effects on the maltose figures both of A dunst and, in turn, of flour produced from fine stocks in later reductions; some surfaces produced an appreciable effect on the dunst, others little or none; the effect seemed unrelated to that on the A flour.

The increase in maltose figure of A flour, caused by a given increase in differential, is greater the rougher the roll surface. With coarse matt rolls, an increase of 1.6 was caused (*) by a rise from 1.3 to 2.1 in differential; the total increase over the figure for the smooth rolls at 1.3 differential was 2.5.

Ziegler (*) also found that the increase in maltose figure, caused by a given increase in differential speed of the rolls, increased with increasing roughness of the roll surface; it was negligible with a polished surface and greater with a surface having crisscrossed scratches than with one having a frosted (sand-blasted) surface. It also increased with increase in rolling pressure. Ziegler found that the increase in maltose figure caused by rise in rolling pressure with a given differential, was markedly dependent on the type of roll surface; it was practically nil with the polished surface but relatively great with the scratched surface. He showed, too, that operation of rolls with the frosted surface at an elevated temperature increased their effect in raising maltose figure of the stock being ground; however, a rise in the range of practical interest (say from 68° to 86°F., or

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20° to 30°C.) increased the maltose figure by only 0.2: from 2.15 to 2.35 (Blish and Sandstedt basis).

Coarse Particle Reduction: (iii) Use of "Mixed" Rolls

The combination of a corrugated (80-cut) and a smooth roll, as a "mixed" pair, effected reduction more easily than smooth rolls alone, especially at higher differentials. The (A) flour from the mixed pair was better in color and ash content than that from corrugated rolls alone; its maltose figure was like that of flour from a pair of smooth rolls run at the same differential speed. The disposition of the corrugated as the fast, with the smooth as the slow, roll gave a better effect on granularity of the grind than the reverse disposition, especially at higher differentials.

Examination of the grinds showed that (with diagonally positioned reduction rolls) the slow (lower) roll acts as the holding roll,* hence results when the corrugated roll of a mixed pair is run as the fast and slow roll, respectively, should be different. This conclusion rested on the observation that flattened pieces of endosperm produced with the corrugated as the slow roll showed, on one side only, well-defined corrugation marks that correspond exactly with the corrugations on the slow roll; the other side was very smooth and appeared to have been rubbed by the smooth roll surface under heavy pressure. On the other hand, particles of endosperm ground with the corrugated as the fast roll had a bold appearance, suggesting that they had been formed by the cutting action of a corrugated roll.

Between the two world wars, "mixed" rolls were not uncommon in Britain. Incidentally, the results of the laboratory investigations suggested the possibility of minimizing starch damage, should it become desirable to do so, by running a smooth slow roll with a fast roll surfaced with fairly coarse corrugations. With such a combination, the coarser fractions of the grind tend to be lower in starch damage than with either smooth or corrugated rolls alone; the question of the best differential to use was not however explored.

*In the break system, on the other hand, we have observed that a particle tends to be held by the roll to which the bran coat (attached to the particle) happens to be presented.

Characteristics of Fine Particle Reduction

In the reduction of finer particles (fine middlings or dunst) the effects of change in surface, and in differential speed of the rolls, on maltose figures of the products of the grinding are smaller than in the reduction of coarse semolina, while that of change in pressure is greater. When fine stock is reduced gently, few "ghosts" are formed, but an increase in rolling pressure causes a rapid increase in the maltose figure of the flour, and a still more rapid one in that of the remainder of the grind (mainly dunst). Thus (', Table VI), in the smooth rolling of middlings (C roll feed) of maltose figure 0.61%, the increment (difference in maltose figure between feed and flour produced from it) varied with flour release as follows:

Release (%)	25	50	70
Increment	0.21	0.35	0.65

The maltose figure of the remainder of the grind, chiefly the dunst, rose even more rapidly. The "increment" in the case of the dunst was almost nil at low releases, but greatly exceeded that for the flour at high ones.

TABLE 4

The effect of using rolls with different surfaces at various differentials on C (2nd midds.) reduction*

Type of Surface	Differential	Percentage of grind: over 1's	over 5's	over 10's	thru 10's
Smooth	1.25	1	1	44 (1.00)	54 (1.14)
Smooth	2.1	..	..	44 (1.00)	56 (1.25)
Corrugated†	1.25	..	1	43 (0.97)	56 (1.17)
Corrugated	2.1	..	..	46 (0.90)	54 (1.10)
Coarse matt	1.25	1	1	45 (0.98)	54 (1.38)
Coarse matt	1.7	..	1	42 (1.00)	57 (1.54)
Coarse matt	2.1	..	..	41 (1.07)	59 (1.73)

*Maltose figures are in parentheses under the corresponding figures for proportion by weight of the particular fraction obtained by sifting.

†80 cuts per inch.

The effects of variation in roll surface and differential on C reduction are shown in Table 4. While the releases of flour were lower than those (about 70%) obtained commercially, other results, for higher releases, confirmed the indication from Table 4 that the corrugated rolls, even at 2.1 differential, have no effect on the maltose figure of the flour (in marked contrast to the case with A reduction). Even the coarse matt rolls had only a small effect within the range of differentials tried. At the lower re-

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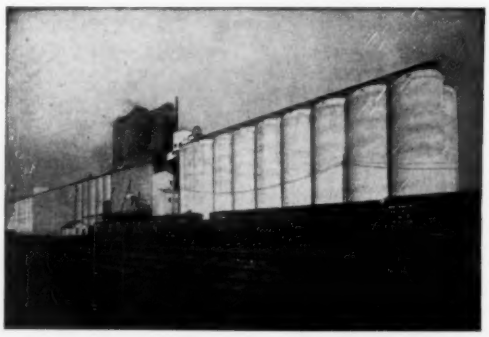

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leases, the maltose figures of the coarser part of the grind were not appreciably affected by change in differential or in surface. At higher releases, however, they were reduced, by amounts up to 0.5, through increase in differential and/or roughness of surface. The ash content of the C roll flour was not appreciably affected by change in differential or type of surface.

The general indications of these tests on A and C rolls (of 6 in. diameter) were confirmed by the results of subsequent tests on 10-inch rolls in a commercial mill; it was also found that the effect of raising the differential speed of the B reduction rolls from 1.25 to 2.5 was to increase from 1.2 to 3.3 the maltose figure of the flour sifted from the grind. The color of the flour was unaffected by the change.

The comparative granularities of the A, B and C roll feeds are shown in Table 5.

TABLE 5

Comparative Granulations* of Feeds to A, B and C Rolls

	Percentage of sample					
	over 24 gg.	over 32 gg.	over 1's	over 5's	over 10's	thru 10's
Width of sieve aperture (mm.)	0.86	0.61	0.39	0.27	0.14	0.14
Sample:						
A feed	0-12(6)	16-44(30)	37-73(55)	1-9(5)	1-3(2)	1-2(1)
B feed	..	..	10-30(20)	30-40(35)	30-50(40)	3-10(6)
C feed	..	..	..	1-11(6)	53-76(65)	13-45(29)

*Means are shown in parentheses.

TABLE 6

Effect, on starch damage, of increases in difference in peripheral speed of reduction rolls, produced: 1 and 3, through increasing driven speed without changing differential; 2, through increasing differential without changing driven speed.

				Increase in peripheral speed difference		
Ref. No.	Roll diameter ins.	Differential	Maltose figure increase*	thru increase in	Extent ft./min.	Extent per 0.2 increase in malt. fig. (ft./min.)
1	6	1.25 (unchanged)	0.2 (approx.)	f.r.s.†	58	58
2	6	1.25, 3.3	1.25	differential‡	329	53
3¶	10	2.5 (unchanged)	0.5	f.r.s.§	160	64

*In the flour sifted (through 10 silk) from the grind made by the rolls in question.

†Fast roll speed (increased from 230 to 420 r.p.m.).

‡f.r.s. maintained at 420 r.p.m.

¶A recent experiment; maltose figures in this case determined by Blish and Sandstedt method and adjusted, for comparison with other values in this paper, by multiplying by 2/3.

§Increased from 205 to 305 r.p.m.

Change in Driven Roll Speed in Relation to Change in Differential

Normally, the speed of the upper, driven (fast) roll is unchanged through change in differential speed but that of the slow, lower roll is reduced, through change in the gearing linking the rolls, in proportion to the increase in differential effected. Naturally, even if the differential speed, which is the ratio of the angular speeds, is unchanged, an increase in speed of the fast roll causes the difference between the peripheral speeds of the rolls to be increased. The increase in starch damage resulting from a given increase in difference of peripheral speeds should be the same, however the latter is caused.

This expectation is supported by the three instances shown in Table 6, the first two of which relate to experiments in these laboratories, the third to tests made recently in a commercial mill. This comparison should be regarded merely as indicative; in view of the considerable difference in granularity between the feeds to the rolls, it is remarkable that the figures in the last column agree so closely. «

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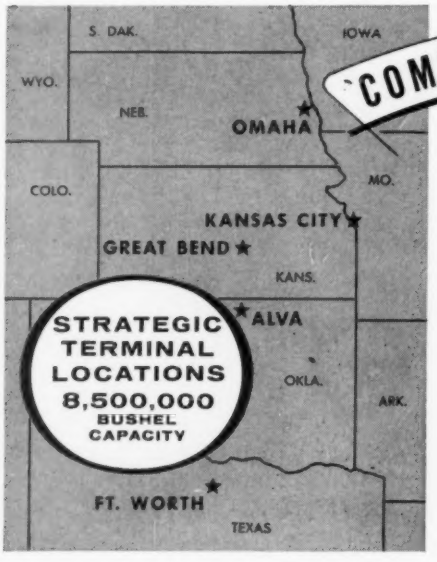

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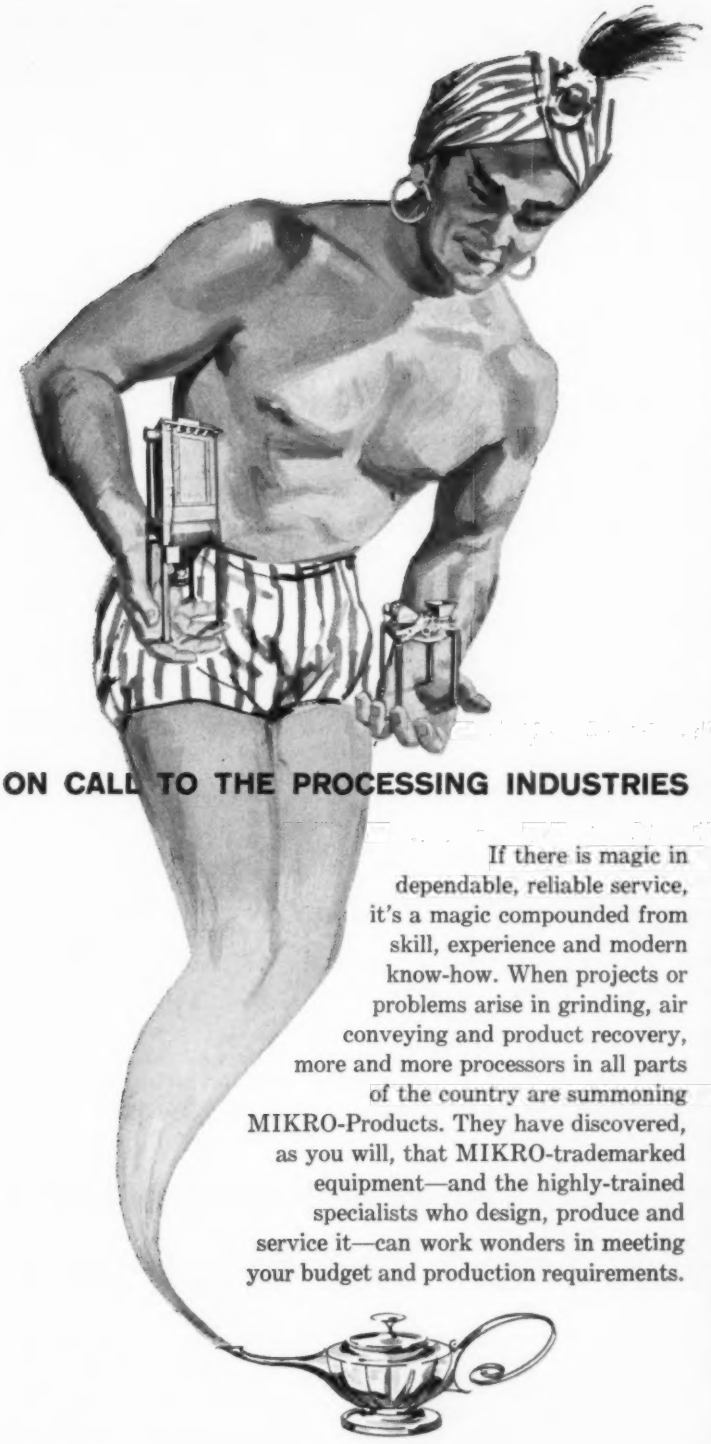

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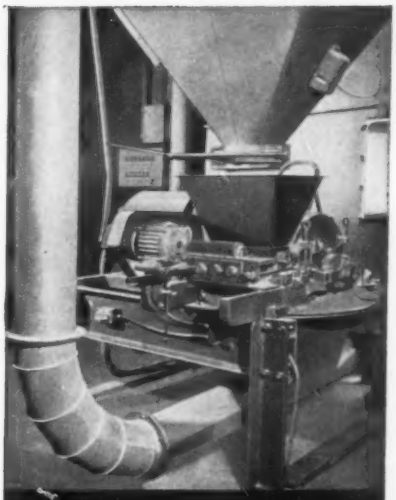


MEER CORPORATION CONTROLS QUALITY, UPS PRODUCTION WITH MIKRO-Products

Meer Corporation, Bergen, N. J. employs a unique 3-level automatic milling operation to handle gum arabic. A MIKRO-PULSAIRE Dust Collector serves as a receiver-filter in an air-conveying system which insures a constant high-volume flow of materials between all units in the installation, including a No. 4 MIKRO-PULVERIZER, as shown above. Results are better quality control and virtually doubled production. We'd like to show you how MIKRO-Products can do just such a job for you.

PROCESSING SYSTEMS

MIKRO-Products....

PULVERIZING MACHINERY COMPANY
6 Chatham Rd., Summit, N. J.
A Division of American-Marietta Company

REPRESENTED THROUGHOUT THE WORLD IN SALES, SERVICE AND MANUFACTURING FACILITIES.

YEARS AGO

From the Files

Of THE MILLER

By Sarah Yocom

TIME waits for NO ONE

ONE OF MY FAVORITE television personalities features a choral group which sings, "Letters, we get letters . . . " Hearing this recently, and especially after finding so much fun in doing the letters-to-the-editor column, it occurred to me how well this theme applies to our circulation department, which contributes much to making the business of publishing more efficient.

Editors aren't the only ones who receive letters. I'm certain that if our long-suffering circulation personnel possessed sufficient soprano, alto, bass and tenor, they could put the TV singers to shame. So I thumbed through the old MILLER volumes to see what circulation's counterparts had to cope with in the 19th century. My conclusion is that even an IBM or Univac would have found it tough going.

Most letters which come in today are brief and to the point. But back in 1876 even the smallest request generally was prefaced by an elaborate explanation as to why it was being made, and if anything additional (and completely unrelated) happened to be on the writer's mind at the moment, this was thrown in for good measure. As a case in point, read this letter written to THE MILLER on Sept. 18, 1876. Apparently, all the gentleman desired was to have his address changed from London to New York. But it seems a political situation in Britain involving a change in policy toward Turkey was troubling him. So, with apologies to citizens of both the British Isles and Turkey, we give you the letter:

London, England

Dear Editors:

With sincere thanks for past favors, I wish to say send future mail to me at Oswego, N.Y. Send no more "enlighteners" to me in this musty region filled with fossils and ancient relics ruled by that grandad of all fossils, old Lord Derby, who is an effectual clog and stumbling stone to any enlightened or progressive tendency the average beef-eater might otherwise have, or wish to carry out; who alone, among all the European powers, befriends, at this late hour, the devilish Turk. Well, I leave this "blarsted country" on or about the 25th of this month and will shake its dust off my feet on the docks of Liverpool, where I expect to embark for a "country as is a country"—"the land of the free and the home of the brave." Don't stop THE Northwestern MILLER, but change the address to Oswego, N.Y., and I shall ever remain yours truly,

F. Simpson

●

This item should interest all of our modern head millers. Did you ever wonder how you stacked up with your forefathers? Well, here's a post-age-stamp description of the "Modern Head Miller of 1876" as published in THE MILLER of that year:

The first thing that strikes forcibly is his youth. He is evidently not over 25 years of age. His step is quick and elastic, though his face is always calm and he makes no unnecessary motion. Excepting the dust of the mill, his clothes are clean and fit. His boots are always well polished and of the most graceful pattern. He carries a modest silver watch but has no other jewelry. He generally belongs to some church and attends regularly.

There is the least taint of superstition in his character. His hands are faultless and he is very jealous of it. To keep his hands smooth, soft and sensitive to the touch is his hourly study. It is his key to success. He is never taken by surprise and always greets with pleasure any stray ma-

FACTS

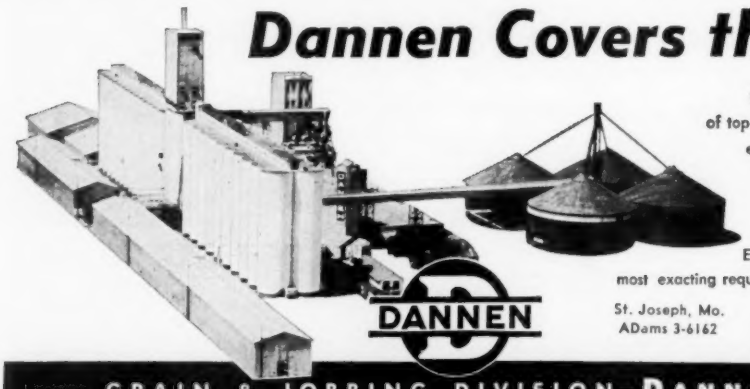
The ABILENE FLOUR MILLS COMPANY

ABILENE · KANSAS

Our new laboratory facilities rank among the very best

CAPACITY-4,000 CWTS.
GRAIN STORAGE
4,700,000 BUS.

Dannen Covers the Midlands



Strategically located, Dannen furnishes all types of top-quality milling wheat from points throughout the entire winter wheat area. Over 25 million bushels of storage space in terminal elevators and twenty-six country stations is your assurance of dependable Dannen service.

Experienced wheat buyers, skilled in meeting the most exacting requirements, are anxious to serve you. Call today.

DANNEN

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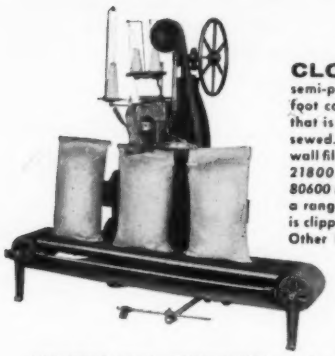
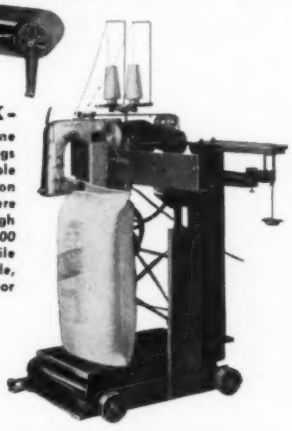
GRAIN & JOBBING DIVISION—DANNEN MILLS, INC.

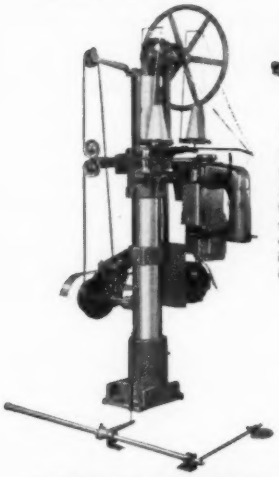
What are Your BAG CLOSING PRODUCTION REQUIREMENTS?



TAPE BOUND CLOSURES? Here is a semi-portable unit *(left)* with a 5-foot conveyor and the sewing head that is standard wherever bags are sewed. For binding the tops of multi-wall filled bags. Conveyor unit, *Style 21800 H*, and sewing head, *Style 80600 H*, adjust vertically to handle a range of bag sizes. Tape binding is clipped automatically at bag ends. Other length conveyors available.



NEED TO CHECK-WEIGH? This machine *(right)* is designed for closing bags on a platform scale; also available for use over floor scale. One person can fill, weigh, and close bags where production is limited. New high speed sewing heads in *Class 53600* available for closing either textile or paper bags. For platform scale, specify *Style 20200 N*; for floor scale, *Style 20200 P*.



YOUR OWN CONVEYOR SYSTEM? This heavy-duty, fixed-base column *Style 20100 H (left)* is designed to fit in with your custom-built conveyor system. Takes *Class 80600, 53600,* or *60000* sewing head. Sewing head is adjustable vertically and is driven independent of conveyor.

LIMITED PRODUCTION? ADDITIONAL PRODUCTION? Here is a practical all-around machine *(right)* that is ideal for the smaller plant with limited production requirements; also used extensively to supplement regular production in large mills. It is readily portable; has a "floating" bag carrier that returns to loading position automatically. Units available for use with either *Class 53600* or *Class 80600* sewing heads. Bag carrier and sewing head adjustable vertically to handle variations in bag sizes.

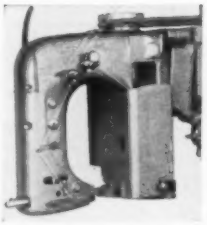
NO two jobs are exactly alike — that's why Union Special builds a wide variety of bag closing equipment. In the Union Special line you will find machines for closing all sizes and kinds of bags from small textile or paper bags of one pound, or less, up to the largest jute and multi-wall paper bags in use today.

Coupled with this broad line of equipment is Union Special's long background of experience and technical know-how that insures customers of getting THE RIGHT MACHINE FOR THE JOB!

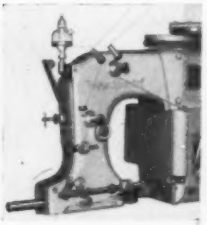
Union Special sewing heads for closing bags are also widely used by makers of specially designed filling, packaging, and automatic handling equipment. Union Special is always glad to cooperate with builders of special production equipment. Union Special representatives, located in all leading industrial centers, are qualified to give you expert recommendations.

Ask for Bulletin 200.

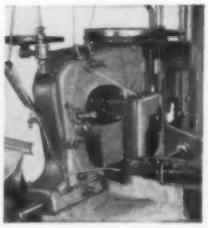
SEWING HEADS FOR EVERY PURPOSE!



CLASS 53600– For closing light and medium weight cotton, burlap, and up to 3-ply paper bags with plain sewed closure. Makes Type 401 Double Locked stitch, with two threads, but can be fitted to make Type 101 chain stitch with single thread.



CLASS 80600– Heavy duty, high production sewing heads for closing medium to heavy textile and multiwall paper bags with plain, folded over, or tape-bound closure. Choice of styles. Stitch Type 401 or Type 101.



STYLE 80600 H — For making tape-bound closure on multiwall paper bags. Filter cord guided under pressure foot. Equipped with automatic tape clipper. Choice of styles. Stitch Type 401 or Type 101.

FINEST QUALITY

Worldwide Sales and Service

Union Special® MACHINE COMPANY

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BAG CLOSING MACHINES

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Grain Elevators
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...in...
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chinery contractors who happen to call at the mill. He loves to talk with them but says little about his own affairs. To the old school millers, he's a hard customer to compete with on the open market.

●

Odds 'n' Ends—

50 YEARS AGO . . .
Sept. 20, 1911

There is every reason to believe that the next session of Congress will witness efforts to enact legislation of widespread influence upon the business interests of the country, notably in the direction of controlling large corporations engaged in industrial occupations in different states. The opinion prevails here that President Taft's administration is turning in the direction of federal incorporation of concerns engaged in interstate trade. The anti-trust litigation involving the oil and tobacco corporations, and the experiences of the federal government with the sugar corporations are believed to be at the bottom of efforts to reach a solution to the problem of monopoly.

●

H. C. Gooch, of the Gooch Milling & Elevator Co., Lincoln, Neb., was in Chicago Wednesday on his way to eastern markets, which he will visit for the next two weeks.

●

25 YEARS AGO . . .
Sept. 16, 1936

At the Wichita (Kansas) Milling Co. it is almost necessary to close down the office when Masonic orders of the city put on some important function. This week the Shriners' picnic took George M. Lowry, president, C. B. Moore, vice president, and others on the force, away for most of the day.

●

Before members of the Minnesota Consular Club and a group of his friends, Sept. 12, L. C. Wilten, cashier of THE Northwestern MILLER was presented with the insignia of the Order of Orange-Nassau, to the knighthood of which he was appointed, as recently announced by Her Majesty the Queen of the Netherlands, in recognition of more than 10 years outstanding service as a Netherlands vice consul.

●

10 YEARS AGO . . .
Sept. 18, 1951

The Fisher Flouring Mills Co., Seattle, founded on an optimistic outlook and chartered through four decades by a confidence in itself, the industry, its community and in the free enterprise system, turned its 40th milepost this summer still looking forward to new horizons. But the same old guideposts to progress remain.

●

Sir John Teasdale, chairman of the Australian Wheat Board, has stated that the present world demand for wheat is stronger and more insistent than at any other period in the 30 years he has been associated with the industry. More production is needed, Sir John added, particularly in Asian countries, where the population has outstripped capacity of the land.

●

Clay Morton, 15-year-old son of Thruston B. Morton, U.S. representative from Kentucky, is reported recovering satisfactorily from an accident which occurred while playing baseball at a camp near Bristol, N.H. Congressman Morton has been chairman of the board of Ballard & Ballard, Inc., Louisville. «

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Designers and Engineers for Mills, Elevators and Feed Mills
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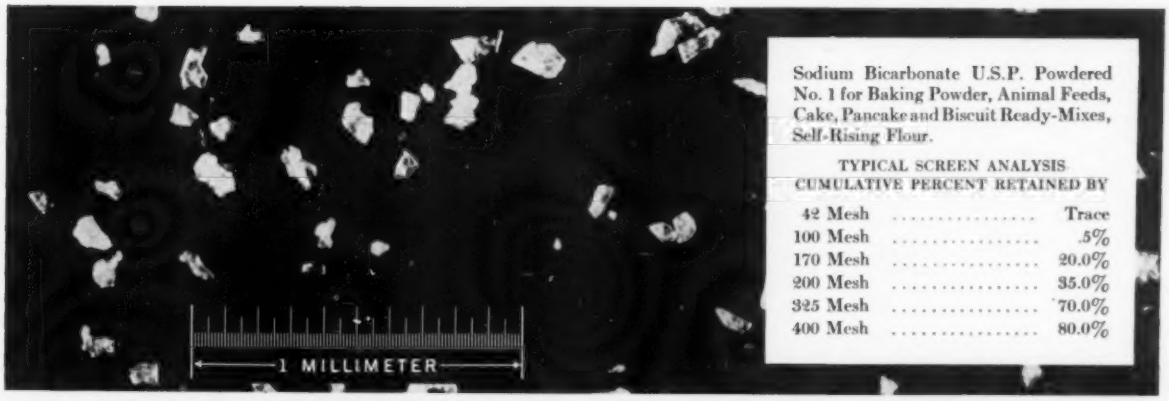
MILLING WHEAT • COARSE GRAINS • MILLFEED
Hard and Soft Winter Wheat
CHICAGO • ST. LOUIS • KANSAS CITY • MINNEAPOLIS

Get Sodium Bicarbonate in the grain size you need every time...

FROM CHURCH & DWIGHT



Sodium Bicarbonate U.S.P. Powdered No. 1 for Baking Powder, Animal Feeds, Cake, Pancake and Biscuit Ready-Mixes, Self-Rising Flour.

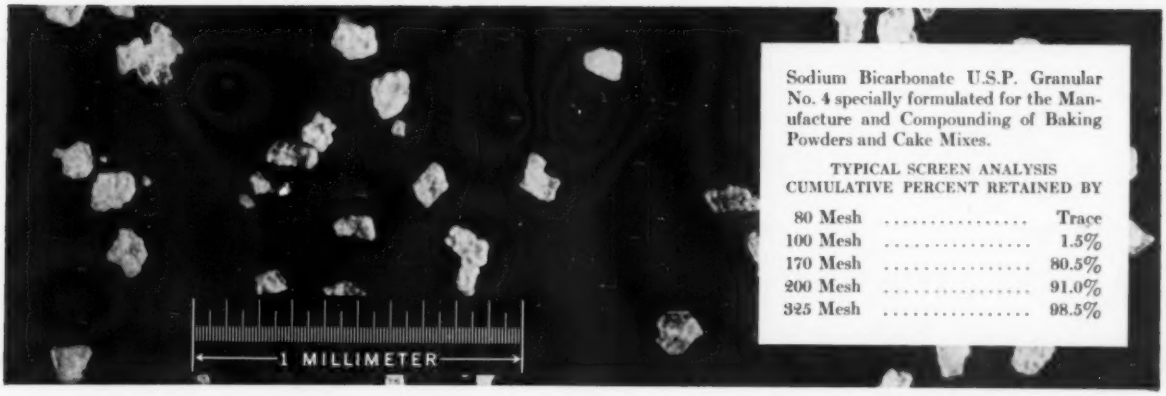
TYPICAL SCREEN ANALYSIS
CUMULATIVE PERCENT RETAINED BY

42 Mesh	Trace
100 Mesh	.5%
170 Mesh	20.0%
200 Mesh	35.0%
325 Mesh	70.0%
400 Mesh	80.0%

Sodium Bicarbonate Treated Free-Flowing (U.S.P. Powdered No. 1 blended with approximately .4% Tri-calcium Phosphate) for Self-Rising Flours and Cake Mixes.

TYPICAL SCREEN ANALYSIS
CUMULATIVE PERCENT RETAINED BY

42 Mesh	Trace
100 Mesh	.5%
170 Mesh	20.0%
200 Mesh	35.0%
325 Mesh	70.0%
400 Mesh	80.0%



Sodium Bicarbonate U.S.P. Granular No. 4 specially formulated for the Manufacture and Compounding of Baking Powders and Cake Mixes.

TYPICAL SCREEN ANALYSIS
CUMULATIVE PERCENT RETAINED BY

80 Mesh	Trace
100 Mesh	1.5%
170 Mesh	80.5%
200 Mesh	91.0%
325 Mesh	98.5%

Don't jeopardize the shelf life or performance of your Baking Powder, Self-Rising Flour or Cake Mix with an inappropriate granulation of Sodium Bicarbonate. Insist on Church & Dwight. You'll get the widest selection of grain sizes because Church & Dwight is the country's largest supplier of Sodium Bicarbonate U.S.P. You'll also get unmatched technical service based on more than 100 years of experience in formulating Sodium Bicarbonate. Unusual grain size requirements given special attention. Try us and see. For technical data on all grades of Sodium Bicarbonate, send for brochure, "Church & Dwight Sodium Bicarbonate—How It Serves Industry Today."

CHURCH & DWIGHT CO., INC., 70 PINE STREET, NEW YORK 5, N.Y

MEN GOING PLACES

Now in charge of the Montana Elevator Division of Montana Flour Mills Co., with the title of vice president, is **Roger F. Morrison**. Action was taken on the election of Mr. Morrison to his new position at the company's regular quarterly directors' meeting in Great Falls.

●

Gaston H. Phenix, president and general manager of Eastern Canada Flour Mills, Ltd., Montreal, has announced appointment of **Jack Schuddeboom** as a director of the company and vice president in charge of sales. Mr. Schuddeboom brings a lengthy experience in the business of grain products and the milling industry to his new position, having served both in Holland and Canada. During World War II he saw active service as an officer in the Royal Netherlands Army, both in Europe and the Far East. He became a Canadian citizen in 1960 and his period of service working with Eastern Canada mills dates back to 1957.

Jack Schuddeboom

●

Alvey Conveyor Manufacturing Co., St. Louis, has named Chaitin Equipment Co., San Francisco, to handle its engineering and sales activities in northern California. The firm is headed by **Neil D. Chaitin**, whose previous business experience as a material handling engineer includes association with two organizations located in California. Mr. Chaitin is a graduate engineer of the U.S. Naval Academy, and attended the University of California's engineering school. In addition to the usual line of package handling conveyors, Alvey manufactures automatic pallet loaders, depalletizers, vertical lifts, patented truck loading and unloading conveyors, and other types of material handling equipment.

Neil D. Chaitin

●

Herbert E. Weyrauch becomes general manager of the electronics control division of Flo-Tronics, Inc., Minneapolis. In addition to his new duties, Mr. Weyrauch continues as sales manager for the division. In its electronics controls operations, Flo-Tronics designs and constructs automatic systems for material handling installations. To this work with the electronics control division of Flo-Tronics, Mr. Weyrauch brings a background of knowledge gained through positions with two leading manufacfacturers of electronics equipment in the fields of transistorized and mechanical controls.

Herbert Weyrauch

●

Two of Cargill, Inc.'s grain men have won top honors as "merchants of the year," reports **Walter B. Saunders**, head of the Minneapolis-based firm's grain division. They are **Erhart H. Becker**, Moorhead, Minn., and **Robert E. Menze**, Portland, Ore. Mr. Becker's award stems from the fact that over a period of four years he increased the Moorhead office's volume and income when compared with operating costs. Mr. Menze was cited for an excellent

Uniformity
the priceless quality in flour
yours always with . . .
Acme-Evans Flours
ANGELITE—cake flour
COOKIE KING—cookie and dough-up flour
CRACKER KING—cracker sponge flour
GRAHAM KING—100% soft wheat graham
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Progressive Milling Since 1821
ACME-EVANS COMPANY, INC., INDIANAPOLIS 9, IND.

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Rely on Mathieson bicarbonate of soda for the highest standards of quality and purity. Choose from the following grades: U.S.P. Powdered and Granular, Miller's Special Regular and Miller's Special No. 2, and Fine—other grades for special requirements. Available from Saltville, Va., and strategically located distributor stocks.
For additional information and samples write:
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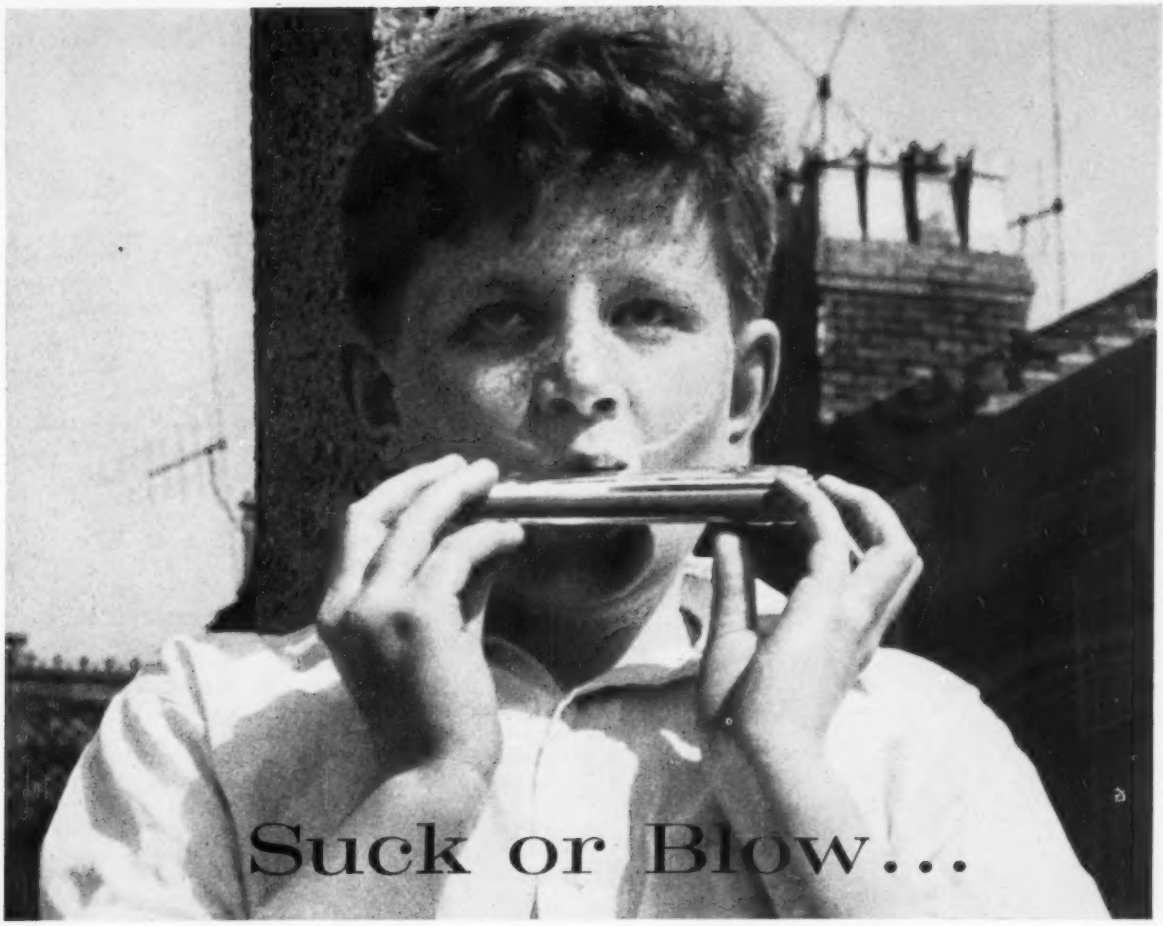
Domestic and Export Millers.
Experienced in all types of bulk delivery.
New . . . complete quality control and baked products laboratory.
Complete line of fine quality Bakers' Flours.
Fancy Durum and Winter Wheat Granulars for macaroni industry.
MILLS AT: PORTLAND, SPOKANE, WENATCHEE



Robinson Pneu-Flow has the answer to **your** conveying problems!

IN THE MILL

Pneu-Flow suction pneumatic conveying in the mill is the most advanced and versatile system available anywhere. Like many of the best engineering ideas it is basically a **simple** system and this contributes greatly to its reliability and low installation, maintenance and running costs.

IN THE SCREENROOM

Pneu-Flow pressure pneumatic conveying has been developed specifically for the screenroom. It incorporates the simplicity and low-cost virtues of the suction system, and individual blower/motor units are utilized for each lift.

Pneu-Flow Conveying saves space, power and installation costs

Millers throughout the world are engaged in a relentless struggle to bring down costs—and many of the most successful of them have found an invaluable weapon in the Robinson Pneu-Flow system. Because it is so flexible and relatively simple, Pneu-Flow conveying is ideal not only for new mills but also for complete or even partial remodels. In most instances it can be used satisfactorily with existing machinery and equipment. Frequently the unique Pneu-Flow ability to lift stock *up through* rollermills has resulted in the saving of a whole floor in mills. If production costs are causing you concern you ought to find out how Pneu-Flow can help you bring them down.

Robinson

Send today for this handsome, clearly written booklet ▶

mill sense makes business sense

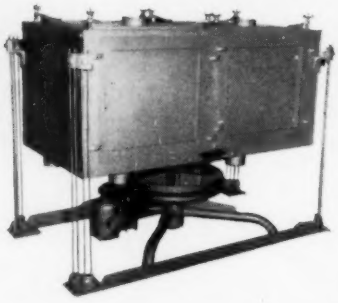
THOMAS ROBINSON & SON LTD., ROCHDALE, ENGLAND—Phone ROCHDALE 47811

LONDON OFFICE: AFRICA HOUSE, KINGSWAY, W.C.2. TEMPLE BAR 2356

HUSTLER

Compact
Floor-Mounted

TWO SECTION SIFTER



NOW—A floor-mounted two section sifter that is sanitary—durable and economical. Has a steel box, unit type base with individual motor drive. All component parts are engineered for long, trouble-free service. Speed and throw are adjustable to meet the requirements of your stock.

Write for information, specifications and prices on all Nor-Vell products. We will custom build to suit your requirements.

NOR-VELL INC.
FORT SCOTT, KANSAS
The Name That Means Better Sifting

SELECTED
MILLING
WHEATS

We originate grain from our country elevators and maintain large terminal facilities to serve you. We can meet most exacting requirements. Call us for wheat or coarse grains. Grand 1-6575.

K.C. Elevators—
Burlington
K.C. Southern
Norris

NORRIS
GRAIN COMPANY
DIV. NORRIS CATTLE CO.
KANSAS CITY
STORAGE CAP: 11,000,000 BUS.

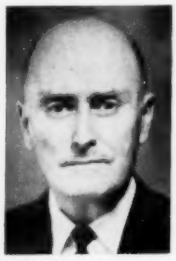
- CHICAGO
- ST. LOUIS
- BUFFALO
- MEMPHIS
- OMAHA
- PEORIA
- PEKIN, ILL.
- BURLINGTON, IOWA
- WINNEPEG

• (Elevator Facilities)

job performed in his capacity as export manager of the Pacific Northwest region, a position which Mr. Saunders termed "one of the most sensitive" in the company. Mr. Becker joined Cargill in 1939. Mr. Menze has been with the firm since 1953.

●

The Simon-Carter Co. is bringing a veteran of the grain and milling machinery industry to its Minneapolis office as export manager for its extensive business activities abroad, states **M. L. Olson**, general sales manager. He is **Theodore T. Hogan**, who for two years has represented Simon-Carter in Mexico, working closely with both government agencies and private business firms. Mr. Hogan's background includes work in the U.S., Argentina and Brazil. As a technical consultant for the Food and Agriculture Organization of the United Nations, Mr. Hogan handled assignments in Africa, South America and Asia. He is a graduate of the Department of Flour and Feed Milling Industries at Kansas State University, Manhattan.



Theodore Hogan

●

The Pillsbury Co. has promoted four of its key men from the Springfield, Ill., plant to executive positions across the U.S. **Virgil Kannall**, maintenance engineer at Springfield, moves up to plant engineer at Buffalo. He has been with Pillsbury since 1956. **David Donnelly**, project engineer and manager of warehouse and bakery mix production since 1952, becomes manufacturing manager of the firm's plant at Hamilton, Ohio. **William Bucholz**, with the company at Springfield since 1959, advances to resident industrial engineer for the Louisville plant. **John Duntley**, manager of the industrial engineering department, will headquarter at Minneapolis, taking over as analytical management engineer. Promotions at the Springfield plant include: **Kirtland Lehman** as assistant to **N. H. Turner**, industrial relations manager; **Roy Sampson**, transferred from Los Angeles to Springfield as bakery mix production manager, succeeding Mr. Donnelly, and **George Kennedy**, to manager of the industrial engineering department.

●

Maynard R. Euverard, assistant to the president of American Machine & Foundry Co.'s Union Machinery division, Richmond, Va., has taken on new duties in addition to those already being performed. He has been appointed to a newly created post as director of technical services for AMF's bakery machinery division, reports **Richard C. Storey**, divisional vice president for AMF. Still headquartering in Richmond, Mr. Euverard will manage operation of the bakery division's engineering department at Brooklyn and Union Machinery's engineering, applications engineering and chemistry departments. Mr. Euverard joined AMF in 1954 as assistant to the vice president for engineering. He was made plant engineering manager for the commercial development division in 1956 and appointed assistant to the president of Union Machinery in 1958. He is a member of the American Society of Bakery Engineers and the American Society for Testing Materials.

Maynard Euverard

●

The St. Louis Merchants Exchange has approved four

With a Fuller Airveyor Conveying System . . .

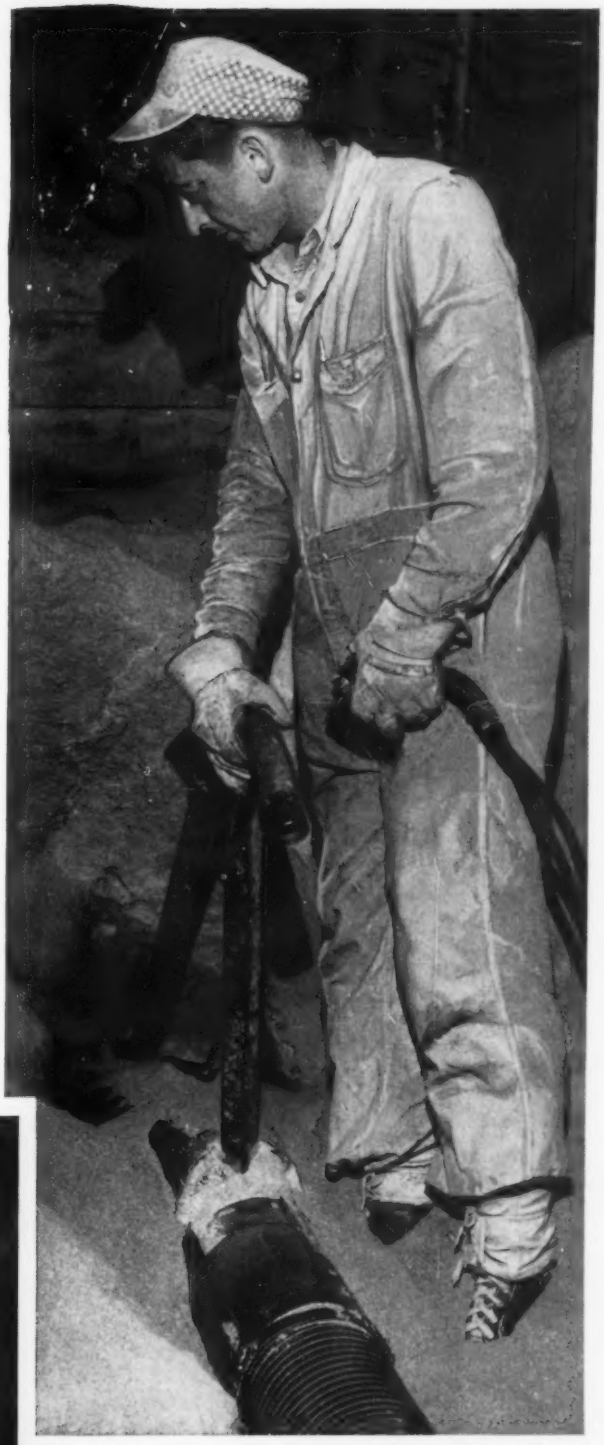
Unloading 30 Tons of Feed Ingredients In Less Than One Hour Is a One Man Job at Ralston Purina

A Fuller Telescopic Airveyor® pneumatic conveying system moves bulk animal and poultry feed ingredients from siding to storage at Ralston Purina's Harrisburg, Pa., mill. The operator keeps the Airveyor nozzle buried in the material by regulating the length of the hose—the telescopic Airveyor conveying system does the rest.

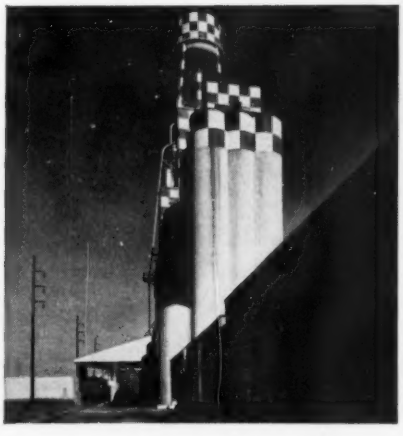
Soybean meal, midds, bran, and other ingredients are sucked vertically 165 feet up 12 stories to any one of 30 storage bins. As the operator works deeper into the car, he simply pushes a button to raise or lower the hose one foot or twenty to reach *any* point within the car. Work never stops to add or take off sections of hose.

Obtaining the savings inherent in bulk purchasing, eliminating the dust hazard, and greatly reducing handling costs are some of the ways Fuller Airveyor conveying systems cut operating expenses in the moving of dry, bulk materials.

Consider the low initial cost and many operating economies of Fuller pneumatic conveying systems when you plan to increase plant capacity. Write or phone today outlining your problem. Fuller will gladly furnish additional information with appropriate recommendation. 1323C A282



Operator controls unloading of feed ingredients at rate of 30 tons an hour — up 12 stories to storage, just by pushing a button.



"See Chemical Engineering Catalog for further details and specifications."

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men for membership: **Paul D. Bartlett, Jr.**, executive vice president, Bartlett & Co., Kansas City; **Ross H. Lewis**, manager, St. Louis office, Bartlett & Co.; **W. Page Darraugh**, assistant manager, Checkerboard Grain Co., St. Louis, and **Charles M. Kulish**, manager, St. Louis office, the Pillsbury Co.

●

E. R. Wilson has been appointed sales manager for Western Canada of Catelli-Habitant and Dyson's products. It's a new position, states **K. J. Forbes**, president of Catelli-Habitant, Ltd., set up because of rapid expansion of the company in Western Canada. In addition, the firm is constructing a new plant in the Greater Winnipeg area.

●

The Grain & Feed Dealers National Assn. has taken another step toward increasing its membership services with appointment of **Dr. Carroll Brunthaver** to its national staff as director of research. For the past year he has been with Michigan State University as assistant professor of agricultural economics, doing market research work. Dr. Brunthaver has a farm background, plus training in statistics and economic analysis, along with specialization in agricultural marketing and agricultural policies.

●

J. Wachal has been named treasurer and comptroller of the United Grain Growers, Ltd., and its subsidiaries. Formerly associated with the firm of chartered accountants, Price, Waterhouse & Co., Mr. Wachal joined UGG in 1955 as assistant treasurer. «

THANKS TO SOME ingenuity and hard work by the people of General Mills, Inc., the age-old "battle of the boxtop" has come a giant step closer to solution. GMI people have developed a new spout, the "Pour 'N Seal," which uses half the top and one end flap as sides. The hungry cereal eater simply lifts the two parts of the boxtop half and the end flap, then pours. To close, he simply reverses the procedure, aided by a tab provided to tuck the spout neatly away until used again. The new spout is being utilized on nine of the company's "Big G" cereal packages, and is being given heavy advertising support on television, aimed at adult audiences to show its convenience to parents

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THE MILLER is available in microfilm form for libraries and companies with microfilm facilities. A complete set of issues for the years 1950 through 1960 can be secured and subsequent volumes will be issued annually.

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The microfilm is in the form of positive 35 mm., on suitably labeled plastic reels, each covering an entire volume. The labeled reels are packed in kraftboard cartons ready for storage on library shelves or for use in a microfiim viewer.

Orders should be addressed to University Microfilms, Inc., 313 N. First Street, Ann Arbor, Mich.

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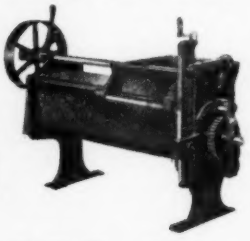

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When the Mill Mutual man heads for your plant, here are some of the things he can do for you:

✓ 1. Look over policies to see if they give the insurance you need at the lowest possible net cost.

✓ 2. Inspect plant from top to bottom to see if all possible is being done to prevent loss — not only from fire but also from production slow-up or break-down.

✓ 3. Show how simple "preventive maintenance" records and follow-up can reduce losses — and increase values, production and profits.

✓ 4. Show how personnel in plants large and small can be organized — all the way from a small committee to a fire brigade — to prevent loss.

The Mill Mutual man is one of a hundred fieldmen and engineers day by day visiting mills and elevators nationwide, wherever grain is stored or processed.

They represent:

GRAIN DEALERS MUTUAL INSURANCE COMPANY, INDIANAPOLIS, *Est.* 1902;

MILLERS NATIONAL INSURANCE COMPANY, CHICAGO, *Est.* 1865;

MILLERS' MUTUAL INSURANCE ASSOCIATION OF ILLINOIS, ALTON, *Est.* 1877;

MICHIGAN MILLERS MUTUAL INSURANCE COMPANY, LANSING, *Est.* 1881;

PENNSYLVANIA MILLERS MUTUAL INSURANCE COMPANY, WILKES BARRE, *Est.* 1887;

MILL OWNERS MUTUAL INSURANCE COMPANY (OF IOWA), DES MOINES, *Est.* 1875;

MILLERS MUTUAL FIRE INSURANCE COMPANY (OF PENNSYLVANIA), HARRISBURG, *Est.* 1890;

THE MILLERS MUTUAL FIRE INSURANCE COMPANY OF TEXAS, FORT WORTH, *Est.* 1898;

AMERICAN MANUFACTURERS MUTUAL INSURANCE COMPANY, CHICAGO, *Est.* 1837.

Collectively these companies are known as The Mill Mutuals and compose the Association of Mill and Elevator Mutual Insurance Companies, which operates the Mill Mutual Fire Prevention Bureau, and Departmental Offices of The Mill Mutuals as follows:

NORTHWESTERN DEPARTMENT, MINNEAPOLIS;

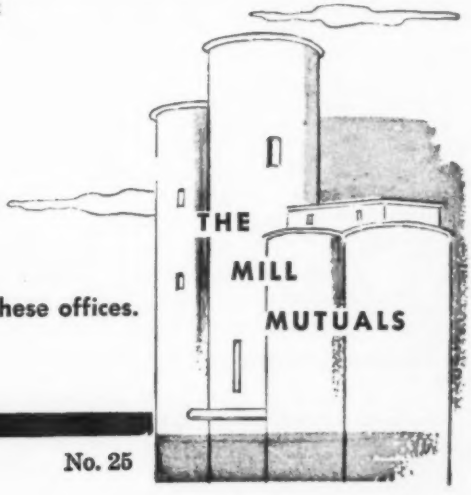
SOUTHWESTERN DEPARTMENT, KANSAS CITY;

OHIO DEPARTMENT, COLUMBUS;

PACIFIC DEPARTMENT, SEATTLE;

SOUTHEASTERN DEPARTMENT, NASHVILLE.

This service is available to you through any of these offices.



[redacted]

No. 25

NEW •IDEAS •PRODUCTS •SERVICES

This reader service department announces the development of new and improved products, new services and new literature offered by manufacturers and suppliers. Claims made in this department are those of the firm concerned. Use the accompanying coupon to obtain the desired information.

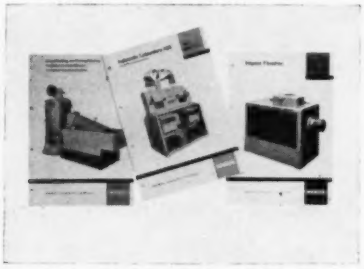
Control Panel Lights

Semco Electric Controls, Inc., has introduced an indicating light for control panels. It is the "Chem-I-Lite," with the exposed parts of moisture-proof, oiltight design. Semco states that the indicating light was designed especially for quick installation, durability and economy. The bulb can be changed from either back or front of the panel. The lens, furnished in unusually vibrant colors, is of special composition. The Semco control panel indicating lights are available in quantity direct from the manufacturer in red, white, yellow, green and blue.

Circle No. 4961
on Reply Form for Details

Equipment Pamphlets

Multi-color pamphlets and catalog leaflets on equipment for the milling industry can be provided by Buhler Bros., its affiliated companies and representatives throughout the world. The printed material contains all essential details concerning application, design and special features of Buhler



machines. Photographs are provided of structural details, plants supplied, technical data, dimensional sketches and particulars about weight. Among materials available are the most recent additions of pamphlets on grain washing machines, the company's impact finisher and its automatic laboratory mill.

Circle No. 4962
on Reply Form for Details

Pneumatic Conveying

Young Machinery Co., Inc., has developed a portable blow tank pneumatic conveying system for handling a number of materials. The system features a minimum of moving parts in the product zone, elimination of the inlet rotary feeder normally used in positive pressure pneumatic systems, and is said to be compact, simple to operate and portable for cycling and batching. Named the Young "Porta-Batch," the pneumatic system operates on a cycle basis, with the tank alternately filling and then discharging. Butterfly valves above and below the hopper operate to keep the input line closed while the tank is being emptied and the output line closed while the tank is being filled.

Circle No. 4963
on Reply Form for Details

Electric Bin Vibrator

Cleveland Vibrator Co. has introduced its MC-2 electric vibrator for use on small bins, chutes and hoppers. Designed for continuous or intermittent service on light duty applications, the vibrator is said to deliver greater intensity than previously found on units comparably priced. The MC-2 features an external mechanical air gap adjustment which changes vibration intensity with the turn of a bolt. The manufacturer states that this will vary intensity of vibration at a frequency of 3,600 vibrations a minute. The cast aluminum body of the MC-2 attaches with two cast feet, eliminating need for a special mounting base. A sheet steel cover protects the vibrator mechanism and is ventilated and screened to prevent entry of dust and dirt. Each MC-2 is equipped with a 6 ft. cord, on-off switch and a ground wire. Dimensions of the base are 6 in. (including mounting feet) by 3 in. Height of the vibrator is 5 in.

Circle No. 4964
on Reply Form for Details

Adhesive Applicator

A portable adhesive applicator weighing only about 10 lb. when filled with a gallon of adhesive has been introduced by Systemation Corp., an affiliate of Bemis Bro. Bag Co. The company expects the applicator to find use in a wide variety of sealing and manufacturing operations. The unit is operated by contained compressed air. It will withstand air pressure exceeding 250 lb. per square inch. The air charge is taken in through an automobile tire-type valve, so the applicator can be charged quickly and conveniently. The applicator is adjustable and can be set to handle high or low viscosity adhesives,

and the glue or bead pattern can be varied. The company states that the unit is easy to fill, clean and maintain. In addition to serving as a handy portable unit, the applicator can also be adapted for use on machines now using glue pots or glue wheels.

Circle No. 4965
on Reply Form for Details

Variable Speed Belts

T. B. Wood's Sons Co. has issued a bulletin on variable speed belts. The bulletin includes an alphabetical listing of applications, a list of manufacturers of equipment using variable speed belts, the manufacturer's variable speed belt part number along with Wood's comparable number, a numerical listing of the manufacturer's part numbers, a numerical listing of belts according to size, a variable speed cross reference, and other pertinent information.

Circle No. 4966
on Reply Form for Details

Reference Table

A wallet-size reference table for estimating the amount of materials required to close sewn open mouth multiwall bags is now available from St. Regis Paper Co. Called the "Closing Materials Calculator," it has been devised by the company's bag division as a guide for production, materials

handling, purchasing, research and engineering planning personnel. The calculator lists, for 1,000-bag lots, the amount of closing materials which would be required for bags ranging in face width size from 10 in. to over 24 in. Amounts are given for several materials ordinarily used. Also listed are the amounts of carliner which would be required for rail shipment of multiwall packaged goods.

Circle No. 4967
on Reply Form for Details

Saw Tooth Crusher

Sprout, Waldron & Co., Inc., is offering an advanced specification sheet giving details on a 62-in. wide saw tooth crusher. The crusher is designed to take continuous discharge from wide conveyor belts or driers and to crush to a prescribed ring size with minimum fines such products as expanded, friable sheet cereals or lumpy materials.

Circle No. 4968
on Reply Form for Details

Moisture Controls

The Matthews Co. announces that its grain unloader can now be regulated by automatic moisture controls to let grain flow out of the dryer when an exact moisture content is reached. This feature is offered as optional equipment on the M-C continuous flow grain dryer. M-C moisture controls are located on each side of the dryer and operate independently. Heated air and grain come in contact with a sensing bulb, causing the moisture control to activate an electric solenoid attached to a ratchet wheel. When the moisture is above the setting of the control dial, the unloader stops until the grain reaches correct moisture content. The process is automatic. A dial setting made on the M-C moisture control is said to eliminate need for anyone to stand by watching the operation. According to the company, grain of any moisture may be placed in the dryer. Even though there may be wide variation in the initial moisture content, all the grain reportedly comes out at the exact moisture content indicated by the automatic moisture controls.

Circle No. 4969
on Reply Form for Details

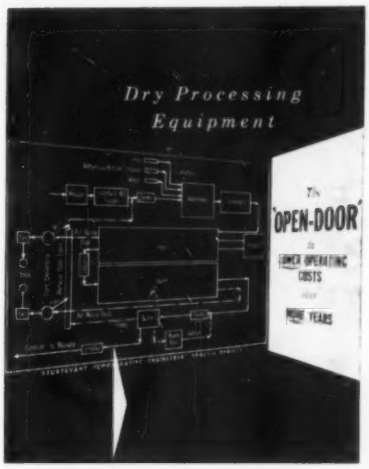
Service Program

A service to provide preventive maintenance for owners of Eureka grain cleaners and to enable processors to meet purity standards of the U.S. Food and Drug Administration is being offered by S. Howes Co. Under the program, a factory serviceman visits each customer on a prearranged date and performs a complete check-up and adjustment procedure. In addition, S. Howes service personnel instruct all key employees in the customer's plant about proper operation and maintenance of Eureka grain cleaners. S. Howes dealers are advised well in advance when this service is available in their respective areas.

Circle No. 4970
on Reply Form for Details

Dry Processing

Sturtevant Mill Co. is offering an eight-page bulletin on its dry processing equipment. The literature covers the company's full line of laboratory and production equipment and includes information on Sturtevant's new flour refining system, operating data and other information. The bulletin discusses crushers, grinders,



pulverizers, micron grinders, air-classifiers, granulators, blenders, mixers, feeders, screens, elevators, conveyors and other equipment.

Circle No. 4971
on Reply Form for Details

Photoelectric Relay

Electric Eye Enterprises has introduced a transistorized light receiver suitable for a number of uses, such as counting, signaling, alarming and controlling in a number of industries, including grain, milling and baking. The light receiver is a compact photoelectric relay with a sensitivity control to enable best possible performance as to speed of operation or maximum sensitivity. The units are water-proof, dust-proof and vibration-proof. They come in cast iron housings with a galvanized finish and screw-held cover. The receivers operate in any position. They have transistors, but no vacuum tubes, and do not require warm-up time. The photoelectric relay operates by direct connection to 105-130

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volts, 60 cycle line. The relay is equipped with SPDT 5 ampere contacts suitable up to 220 volts. Also, the unit is not sensitive to stray light, states the manufacturer. Safe operation may be obtained from a 100 watt

lamp for distances to approximately five feet or from a projector to distances up to 25 ft. Relay operation is within 0.05 sec. When used in counting operations, speeds up to 1,200 ft. min. are obtained under favorable conditions and setting of the sensitivity and speed control.

Circle No. 4972
on Reply Form for Details

Dense Stream Conveying

A continuous filter-type portable transfer unit for dense-stream pneumatic conveying of dusty materials is now available from the Fuller Co. The latest of Fuller's portable Airveyor units, it is available for three-inch and four-inch conveyor lines. Units will handle a wide range of milled and pulverized materials, such as flour, cracked grains, feeds, meals, sugar and salt. Main feature of the high capacity transfer unit is a completely automatic filter. Fuller states that this unit is of very simple construction, with its filter elements cleaned continuously by a single master valve driven by a ⅛ h.p. motor. The valve has only one moving part, the rotor, which is carried in two bearings and sealed for life. Fuller portable Airveyor transfer units are of the combination vacuum-pressure type, with the vacuum side picking up material and the pressure side delivering it to the desired destination. Incoming material is separated from the conveying air by the continuous filter on the vacuum (intake) side of the blower and reintroduced through a high-efficiency airlock into the conveying air on pressure (discharge) side of the blower. The airlock is driven from the blower shaft. If the airlock is prevented from turning, due to entrance of foreign material, an overload discharge release instantly disengages the drive and cuts off power. This disengagement device is said to protect the airlock against damage while blower and motor coast to a stop.

Circle No. 4973
on Reply Form for Details

Moisture Testers

Seedburo Equipment Co. has announced plans for leasing or financing Steinlite moisture testers and other grain testing, grading and handling equipment. The plan allows for placing of any order of $350 or more on a lease basis with terms of 12 to 36 months. Seedburo states that all payments are tax deductible, and that leases may be renewed when they expire for 6% of the initial cost per year. The financing plan, designed for purchases of $1,500 or more, provides for a minimum down payment and monthly installments. Both plans are designed to offer the user whatever equipment he needs without depletion of his working capital.

Circle No. 4974
on Reply Form for Details

Elevator Legs

The complete line of steel self-supporting elevator legs and industrial bucket elevators manufactured by Huss & Schlieper is featured in a catalog now released by this firm. The catalog gives details of special features of Huss & Schlieper's "Kleen Grain" elevator legs and the Rex-Rated standard industrial bucket elevators designed by Chain Belt Co. and manufactured by Huss & Schlieper. Specification and dimension drawings of all of these elevators, plus a complete listing of "Kleen Grain" accessories, are included in the publication. «

Circle No. 4975
on Reply Form for Details

Please send me more information. I have circled code numbers of items in which I am interested.

4961	4962	4963	4964	4965
4966	4967	4968	4969	4970
4971	4972	4973	4974	4975

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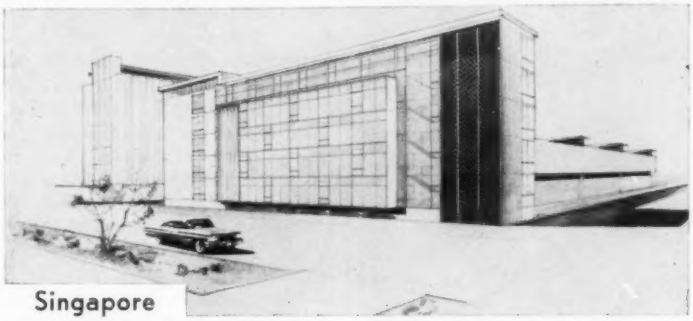
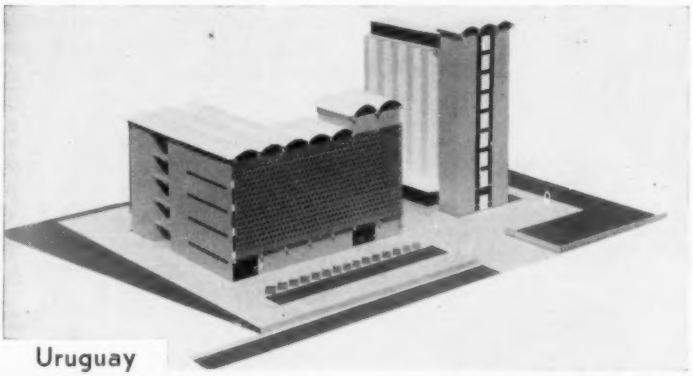


Singapore

THE PORT AREA of Singapore soon will be augmented by the structure pictured here, a new flour mill to be constructed by Khong Guan Flour Milling, Ltd. The facility will have a daily capacity of 140 tons, or 2,380 cwt. of flour, and is expected to supply the Khong Guan biscuit business, which owns a chain of factories in Singapore, Malaya and neighboring countries. The mill will be served by a port elevator with a pneumatic intake plant and is designed to contain a second plant of the same capacity. Equipment will be supplied by the mill engineering firm, Ocrim, of Cremona, Italy. Founders of the Khong Guan industry group are the brothers Chew Choo Keng and Chew Choo Han, well known across Southeast Asia.



Uruguay

EQUIPMENT FOR THIS new flour mill, to be started up this month in San Jose, Uruguay, also is being supplied by the Ocrim firm. The plant will have a daily capacity of 220 tons, or 3,740 cwt. of flour, and has been constructed for Molinos San Jose, S.A. It is in the same area where a 120-ton mill was destroyed by fire in 1958. Included in the new installation are a grain elevator for storage of 20,000 tons of wheat in bulk and a feed plant with a daily capacity of 120 tons, or 2,040 cwt. Particular attention has been given to architecture of the new building to suit local climatic conditions during the hot season in the Rio de la Plata region.

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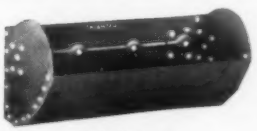

Pillsbury Moves Into Australia

The Pillsbury Co., Minneapolis, continuing its expansion into new international markets along with maintaining steady growth in the U.S., has purchased a 50% interest in White Wings Pty., Ltd., a grocery marketing company headquartered in Sydney, New South Wales, Australia.

Announcement of the purchase was made by Paul S. Gerot, Pillsbury's president, to stockholders at the company's annual meeting in Minneapolis. White Wings is owned by Gillespie Holdings, Ltd., which has been prominent in the flour milling industry in Australia for more than 60 years.

In becoming partners with White Wings firm, Pillsbury will manufacture and distribute baking mixes and other items similar to the product line which it distributes in the U.S. White Wings currently manufactures and distributes a line of cake, pudding and specialty mixes, as well as family flour, under its own label.

White Wings has shown substantial growth in recent years, Mr. Gerot said, and now occupies a dominant position in Australia in the flour and mix business.

Managing director of the new company will be Ronald Francis, who has served as general manager and a director of White Wings for some years.

During the annual meeting Mr. Gerot told stockholders, "We have reason to believe that growth trends are continuing in the current year.

"Although all of the records for the first quarter of fiscal 1962 are not yet in, we do know that both sales and earnings for the months of June and July were up over the same period a year ago. Based on figures now available, it appears that sales continued to improve in August."

Mr. Gerot noted that August earnings figures are not yet available, but that August last year produced unusually high earnings, and there is some question as to whether the company will equal this mark.

Prior to the annual meeting, the Pillsbury board of directors declared a dividend of 37.5¢ on common stock, payable Dec. 1 to stockholders of record on Nov. 6. It was the company's 138th consecutive quarterly dividend. «

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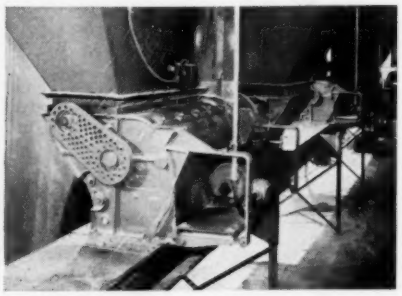

After operating these eight Draver Micro-Master Feeders for three years, this user reported:

"We are completely satisfied with the performance of our Draver Feeders. We feel that this installation is an important and very necessary integral part of the over-all system, yet one which has required no attention or servicing since installation three years ago."

If consistent blend accuracy—and dependable production with minimum maintenance—for a reasonable original investment—are important to you, too, choose trade-proved Draver Feeders. Models for batch or continuous mixing; optional remote controls. Write for Catalog 806.

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RIVER SUB-TERMINAL
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General Offices: Denver, Colorado

Day, Hart-Carter Firms Announce Merger Plans

Directors of the Day Co., Minneapolis, and Hart-Carter Co., Peoria, Ill., have given unanimous approval to a proposed merger, with shareholders of both firms asked to approve the action at special meetings scheduled in the two cities Oct. 2.

A two-thirds majority approval is necessary by both groups to complete the transaction and the merger, if approved, will become effective Oct. 6. Under terms of the agreement, the Day Co. name will be retained and the firm operated as a division of Hart-Carter.

Three subsidiary companies of Day also will retain their present names, operating as Hart-Carter subsidiaries. These are: Day Sales Co.; the Day Company of Canada, Ltd.; and Daycom, Inc. No major changes in operating policies or personnal of either the company or its subsidiaries are contemplated.

Officials of Day and Hart-Carter report that the purpose of the merger is to provide Hart-Carter with a more diversified line of products and Day with additional working capital for continued growth. Gains also are expected by the sharing of experience in matters of management, research and development and engineering. Management of the firms has expressed the view that the merger should provide an anticipated combined sales volume of $7.5 million.

The Day Co. was founded in 1881 in Minneapolis, and until about 15 years ago, was active almost exclusively in the grain elevator and dust control field.

Hart-Carter manufactures farm machinery components and has been active in the farm implement field for 72 years. It operates plants in Peoria and Gridley, Ill., and in Webster City, Iowa, plus having a 50% interest in the Simon-Carter Co., Minneapolis. «

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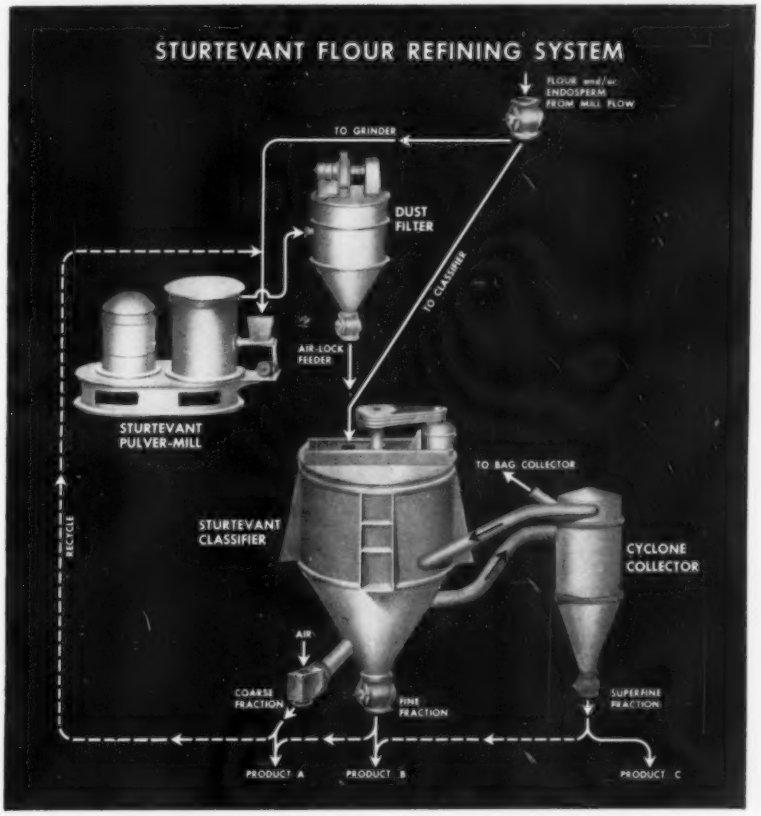

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With a Sturtevant Flour Refining System you have full operating flexibility at all times . . . can make precise separations for protein shifts, primary classifications, coarse and fine separations for new end products, no matter what your wheat source is — now, tomorrow, or in years to come.

Simple adjustments on the Sturtevant Pulver-Mill® and Classifier* enable you to triple-split *any* mill flow into fractions precisely selected for micron size, starch-protein level, viscosity, absorption. Supplemental recycling and blending possibilities make the individual specs you can meet almost infinite in number.

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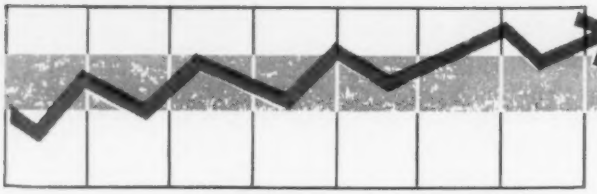

FLOUR PRODUCTION

A Statistical Service Provided Continuously for Readers of The Northwestern Miller for More than Half a Century.

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to THE Northwestern MILLER with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Aug. 27-Sept. 3, 1961	*Previous week	Aug. 28-Sept. 4, 1960	Aug. 29-Sept. 5, 1959	Aug. 30-Sept. 6, 1958
Northwest	779,993	795,408	741,747	648,133	735,702
Southwest	1,506,641	1,521,684	1,433,440	1,266,710	1,542,926
Buffalo	593,466	567,775	547,376	522,853	521,758
Central and Southeast	584,410	647,694	595,855	603,759	596,938
Pacific Coast	493,397	506,036	446,591	422,679	470,669
Totals	3,957,907	4,038,597	3,765,009	3,424,134	3,867,993
Percentage of total U.S. output	78.5	78.5	75	75	75
Estimated total U.S. production	5,041,920	5,144,710			
Accumulated total this month	1,008,384	.....			

*Revised.

	—Percentage of capacity operated in 5-day week—					Crop year flour production ——July 1 to——	
	Aug. 27-Sept. 3, 1961	Previous week	Aug. 28-Sept. 4, 1960	Aug. 29-Sept. 5, 1959	Aug. 30-Sept. 6, 1958	Sept. 3, 1961	Sept. 4, 1960
Northwest	105	107	102	89	110	6,815,052	6,545,000
Southwest	109	110	108	98	117	13,845,022	12,441,717
Buffalo	117	112	105	106	110	5,201,699	4,524,387
Central and S. E.	91	101	91	94	105	5,407,785	5,589,717
Pacific Coast	105	107	96	91	149	4,167,730	3,873,173
Totals	106	108	102	96	116	35,437,288	32,973,994

NORTHWEST

Minneapolis

	5-day week capacity	Flour output	% capacity
Aug. 27-Sept. 3.	185,500	203,778	110
Previous week ..	185,500	*203,913	110
Year ago	194,500	190,686	98
Two years ago ..	231,000	175,820	76
Five-year average			96
Ten-year average			96

*Revised.

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% capacity
Aug. 27-Sept. 3.	558,870	576,215	103
Previous week ..	558,870	*591,495	106
Year ago	534,250	551,061	103
Two years ago ..	494,500	472,313	96
Five-year average			104
Ten-year average			96

*Revised.

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Wisconsin, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% capacity
Aug. 27-Sept. 3.	642,700	584,410	91
Previous week ..	642,700	*647,694	101
Year ago	651,450	595,855	91
Two years ago ..	643,750	603,759	94
Five-year average			94
Ten-year average			87

*Revised.

SOUTHWEST

Kansas City

	5-day week capacity	Flour output	% capacity
Aug. 27-Sept. 3.	297,750	257,004	86
Previous week ..	297,750	*252,699	85
Year ago	254,250	264,103	104
Two years ago ..	221,750	199,899	90
Five-year average			106
Ten-year average			100

*Revised.

Representative Mills, Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% capacity
Aug. 27-Sept. 3.	1,084,395	1,249,637	115
Previous week..	1,084,395	*1,268,985	117
Year ago	1,067,250	1,169,337	110
Two years ago..	1,068,800	1,066,811	100
Five-year average			109
Ten-year average			99

*Revised.

BUFFALO

	5-day week capacity	Flour output	% capacity
Aug. 27-Sept. 3.	505,500	593,466	117
Previous week ..	505,500	*567,775	112
Year ago	522,000	547,376	105
Two years ago ..	494,500	522,853	106
Five-year average			108
Ten-year average			104

*Revised.

PACIFIC COAST

Principal Mills on the Pacific Coast

California, Oregon and Washington Mills

	5-day week capacity	Flour output	% capacity
Aug. 27-Sept. 3.	471,200	493,397	105
Previous week ..	471,200	*506,036	107
Year ago	466,500	446,591	96
Two years ago ..	466,500	422,679	91
Five-year average			96
Ten-year average			89

*Revised.

DURUM PRODUCTS OUTPUT

Durum products output of mills reporting to THE Northwestern MILLER, in sacks, based on five-day week:

	5-day week capacity	Wkly. production	% of capacity
Aug. 27-Sept. 3.	167,250	175,472	105
Previous week ..	167,250	*197,127	117
Year ago	156,500	182,654	117

	Crop year production
July 1-Sept. 3, 1961	1,496,551
July 1-Sept. 4, 1960	1,530,356

*Revised.

Canadian Price Adjustments Changed

Price adjustment figures announced by the Canadian Wheat Board and in effect Sept. 14 were as follows: To U.K. and other European destinations via Canadian and U.S. Atlantic ports, also via St. Lawrence, Churchill, Canadian and U.S. Pacific ports, 4⅝¢ bu.; to other countries, excluding U.S. and territories, from Canadian and U.S. Atlantic ports, 14⅛¢ bu.; from St. Lawrence, Churchill, Canadian and U.S. Pacific ports, 13⅝¢ bu. The above adjustment prices apply to wheat milled in Western Canada. For wheat milled in the Bayport area the rate is ½¢ bu. less, while for wheat milled in the Humberstone area and in the Toronto area the rate is 1¢ bu. less. Wheat milled in the Montreal area is 2¢ bu. less. «

Production for Aug. 27-Sept. 3 is at the left; for Sept. 3-10 appears here

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to THE Northwestern MILLER with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Sept. 3-10, 1961	Previous week	Sept. 4-11, 1960	Sept. 5-12, 1959	Sept. 6-13, 1958
Northwest	724,985	779,993	724,348	809,529	752,458
Southwest	1,484,759	1,506,641	1,320,425	1,483,493	1,581,257
Buffalo	571,803	593,466	367,229	559,004	585,625
Central and Southeast	583,864	584,410	547,950	690,953	593,370
Pacific Coast	433,747	493,397	447,448	500,490	490,617
Totals	3,799,158	3,957,907	3,407,400	4,043,469	4,003,327
Percentage of total U.S. output	78.5	78.5	75	75	75
Estimated total U.S. production	4,839,692	5,041,920			
Accumulated total this month	5,848,076	1,008,384			

	—Percentage of capacity operated in 5-day week—					Crop year flour production ——July 1 to——	
	Sept. 3-10, 1961	Prev. week	Sept. 4-11, 1960	Sept. 5-12, 1959	Sept. 6-13, 1958	Sept. 10, 1961	Sept. 11, 1960
Northwest	97	105	99	112	113	7,540,037	7,269,348
Southwest	107	109	100	115	120	15,329,781	13,762,142
Buffalo	113	117	70	113	123	5,773,502	4,891,616
Central and S. E.	91	91	84	107	104	5,991,649	6,137,667
Pacific Coast	92	105	96	107	156	4,601,477	4,320,621
Totals	101	106	92	112	120	39,236,446	36,381,394

NORTHWEST

Minneapolis

	5-day week capacity	Flour output	% capacity
Sept. 3-10	185,500	†200,760	108
Previous week	185,500	203,778	110
Year ago	194,500	205,943	106
Two years ago	231,000	236,782	103
Five-year average			96
Ten-year average			96

†Four-day week.

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% capacity
Sept. 3-10	558,870	†524,225	94
Previous week	558,870	576,215	103
Year ago	534,250	518,405	97
Two years ago	494,500	572,747	116
Five-year average			104
Ten-year average			96

†Four-day week.

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Wisconsin, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% capacity
Sept. 3-10	642,700	†583,864	91
Previous week	642,700	584,410	91
Year ago	651,450	547,950	84
Two years ago	643,750	690,953	107
Five-year average			94
Ten-year average			87

†Four-day week.

SOUTHWEST

Kansas City

	5-day week capacity	Flour output	% capacity
Sept. 3-10	297,750	†238,582	82
Previous week	297,750	257,004	86
Year ago	254,250	216,413	85
Two years ago	221,750	249,290	112
Five-year average			106
Ten-year average			100

†Four-day week.

Representative Mills, Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% capacity
Sept. 3-10	1,084,395	†1,246,177	115
Previous week	1,084,395	1,249,637	115
Year ago	1,067,250	1,104,012	103
Two years ago	1,068,800	1,234,203	115
Five-year average			109
Ten-year average			99

†Four-day week.

BUFFALO

	5-day week capacity	Flour output	% capacity
Sept. 3-10	505,500	†571,803	113
Previous week	505,500	593,466	117
Year ago	522,000	367,229	70
Two years ago	494,500	559,004	113
Five-year average			108
Ten-year average			104

†Four-day week.

Millfeed Production

Mills in the Northwest, Southwest and at Buffalo, representing 75% of the combined flour milling capacities of those areas, reported production of 52,488 tons of millfeed for Sept. 3-10, compared with an output of 45,514 in the corresponding week a year ago. Production for the previous week of Aug. 27-Sept. 3 was 54,347, compared to 51,374 in the corresponding week of 1960.

PACIFIC COAST

Principal Mills on the Pacific Coast

California, Oregon and Washington Mills

	5-day week capacity	Flour output	% capacity
Sept. 3-10	471,200	†433,797	92
Previous week	471,200	493,397	105
Year ago	466,500	447,448	96
Two years ago	466,500	500,490	107
Five-year average			96
Ten-year average			89

†Four-day week.

DURUM PRODUCTS OUTPUT

Durum products output of mills reporting to THE Northwestern MILLER, in sacks, based on five-day week:

	5-day week capacity	Wkly. production	% of capacity
Sept. 3-10	167,250	†164,772	99
Previous week	167,250	175,472	105
Year ago	156,500	175,117	112

	Crop year production
July 1-Sept. 10, 1961	1,661,323
July 1-Sept. 11, 1960	1,705,473

†Four-day week.

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Here's a simple, rapid way to determine the bread-baking strength of wheat. The Zeleny Test does not require the elaborate milling equipment usually needed for bread-baking or dough-mixing tests. The test may be completed in 18 minutes or in an average time of about 5 minutes when a number of tests are made simultaneously.

Strong wheat is in great demand and usually commands a considerable premium over weaker wheat in the U.S. and world markets. All evidence available indicates that the Sedimentation Test usually provides a better measure of the overall bread-baking strength of wheat than any other known test except an actual bread-baking test.

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Canadian Commentary

Wheat Crop Grades High, Protein Quality Good

Canada's 1961 wheat crop continues to grade high and reports indicate that the protein content is the best for some time. The preliminary survey issued by the Board of Grain Commissioners places the protein content at an average of 14.4% compared with the long time average of 13.6%.

From Aug. 1 to Sept. 7, inclusive, 86% of all wheat inspected from this year's crop graded No. 3 Northern or better, with No. 2 Northern the predominating grade. A year ago in the same period only 50% graded No. 3 Northern or better, with the lower grade predominating in 1960. For the first time in many years wheat is grading No. 1 Hard, and while several samples inspected have come into this classification, only three carloads grading this high have actually come forward from Canadian points.

Observing this trend, the Searle Grain Company says this grade has been missing from grain marketings for nearly 10 years. "At one time it was a symbol of perfection so far as Canadian wheat was concerned." Wilfred G. Malaher, research director for Searle, said that only about 100 carloads have graded No. 1 Hard since 1941, and during the past eight seasons no cars of wheat have fallen into this category. During the early 30's only about 23 million bushels graded No. 1 Hard.

Mr. Malaher said a change in harvesting and threshing procedures and the use of the combine had virtually ruled out the prospect of Western Canada again harvesting much of this particular grade.

Canadian Wheat Board price for No. 1 Hard is identical with No. 1 Northern—$1.40 per bushel, basis in store Fort William/Port Arthur or Vancouver. There is no premium for No. 1 Hard and it is very unlikely that one will be established as the volume to be harvested this year may not yield sufficient size to attract buyers exclusively for that particular grade in the export market.

Wheat Crop Forecast

Canada's 1960-61 wheat crop is forecast at 252,495,000 bu. compared with 489,624,000 a year ago. The figure, based on indicated wheat yields at Aug. 15 and released by the statistics branch of the Dominion Bureau of Statistics includes spring wheat production in Western Canada of 231,000,000 bu. The comparative total a year ago was 470,000,000 bu.

Higher Wheat Prices Charged by Canada

Importing countries will have to pay 18¢ bu. more for Canadian wheat than they paid several months ago, Agriculture Minister Alvin Hamilton has announced. The higher price is due to increased export sales by the federal government and the exchange rate on the Canadian dollar.

Additional sales at the new price will be announced in the near future, Mr. Hamilton said. Prices at Fort William would go up from $1.62 to $1.80 and at the West Coast from $1.70 to $1.88.

Increased sales this year of Canada's high protein wheat resulted from a deficiency in the U.S.

Mr. Hamilton does not think that Canadian wheat

sales will suffer too greatly if Britain enters the Common Market, unless flat embargoes are placed on Canadian wheat by Germany and France. These countries will need Canadian wheat for milling purposes, the agriculture minister said.

Soft Wheat Quota Raised by Board

To obtain sufficient quantities of soft white spring wheat for mill requirements the Canadian Wheat Board has authorized a supplementary delivery quota of 10 bu. per acre for that type of wheat. The supplementary quota applies to producers who contracted with mills for the production of this variety.

Wheat, Flour Exports

More than 347,700,000 bu. in the form of Canadian wheat and flour moved for export in the 1960-61 crop year. The preliminary figures released by the Board of Grain Commissioners showed almost 311,000,000 bu. of the aggregate to be wheat, a figure exceeded only twice in Canadian grain trade history—once in 1928-29 when clearances were 354,400,000 bu. and in 1952-53 when 329,000,000 bu. of wheat moved for export. A year ago combined wheat and flour exports totaled 272,132,000 bu. and 37,415,000 bu. of this was in the form of flour. The 1960-61 flour exports are subject to revision and estimated at slightly less than 36,800,000 bu.

There was no final breakdown of the distribution of flour exports at the time the report was compiled. A major reorganization of customs export data tabulation currently in process within the external trade division of the Dominion Bureau of Statistics has temporarily delayed the release of current reports on flour exports.

Completed figures to the end of May, however, showed 10,855,000 bu., in the form of flour, cleared to the U.K.; 1,525,000 to Ghana; 2,355,000 to Philippines; 1,316,000 to Lebanon; 1,251,000 to Jamaica; 1,200,000 to Trinidad; 1,011,000 to Norway; 1,294,000 to Japan; and 1,129,000 bu. as flour to the U.S. Canadian flour in varying amounts went to 67 other destinations.

Wheat Policy and China

As a purchaser of Canadian wheat, mainland China is free to decide what other countries may receive the grain within certain limits. This was the reply Prime Minister John Diefenbaker gave at a Winnipeg press conference recently concerning China's diversion of some Canadian wheat from its own use to Cuba and East Germany. While not elaborating on the limits, Mr. Diefenbaker said there is a list of countries to which sales are not made. The list has not been made public. «

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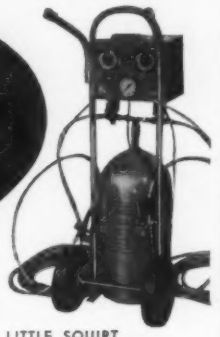

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If you have freight elevator

SAFE—Low dosage. Strong warning odor.

QUICK—Minimum shut-down. Two men in two hours can spot fumigate average 4,000 cwt. mill.

ECONOMICAL—Two fl. oz. does job of nearly 1 qt. old type fumigant.

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6. **Simplicity and economy:** Only 4 tough, long-wearing, inter-locking parts — all washable. Pure latex filter outwears throw-away type more than 100 to 1.

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FLEXO PRODUCTS, INC.
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THE NEW YORK STOCK EXCHANGE

Quotations on baking, milling and allied stocks listed on the New York Stock Exchange:

	1961 High	1961 Low	Sept. 4, 1961 Close	Sept. 11, 1961 Close
Allied Mills, Inc.	52¾	36½	44¾	43½
Allis-Chalmers	29½	23⅜	24⅜	23½
Pfd. $3.25	110	101	102	101⅞
American Bakeries Co.	47⅜	36	43⅝	43½
American Cyanamid	50	41¼	42½	41⅜
Archer-Daniels-Midland Co.	43⅜	33½	....	39
Borden	68¾	55⅜	61¼	61¼
Continental Baking Co.	58	44⅝	53½	53½
Corn Products Refining Co.	59⅞	45⅝	56½	57
Crown Zellerbach Corp.	61½	51¼	60¼	59½
Dow Chemical	85⅜	70	85	83⅝
General Baking Co.	10¼	6½	7⅛	7
General Foods Corp.	96	68⅝	93¼	93⅛
General Mills, Inc.	38¾	31	38⅜	36⅞
Pfd. 5%	113	106¼	110	109½
Merck & Co.	91½	77⅜	85¾	84¾
Monsanto Chemical Co.	58⅜	44⅛	56¼	57½
National Biscuit Co.	85¾	70½	78	77¾
Pfizer, Chas.	44⅞	30⅝	40¼	40⅜
Pillsbury Co.	67¾	44⅛	62	65¾
Procter & Gamble	100½	73	98	98½
Quaker Oats Co.	85½	57½	82	85⅜
Pfd. $6	142½	131	140¼	140¼
St. Regis Paper Co.	40½	31½	38⅞	37¾
Standard Brands, Inc.	78½	52¼	76¾	75¼
Sterling Drug	96	67	90¼	89
Sunshine Biscuits, Inc.	115	101½	110¼	112
United Biscuit of America	45½	33¾	36	36¼
Ward Baking Co.	13⅞	10⅜	10⅞	10½
West Virginia Pulp & Paper Co.	42¾	33⅛	38¾	38¼

Stocks not traded:

	Bid	Asked
Continental Baking Co., $5.50 Pfd.	107¼	108¼
Corn Products Refining Co., $7 Pfd.	92½	94
Crown Zellerbach Corp., $4.20 Pfd.	91½	92¼
General Baking Co., $8 Pfd.	92⅛	94
Merck & Co., $3.50 Pfd.	81	84
National Biscuit Co., $7 Pfd.	152½	153
Pillsbury Co., $4 Pfd.	94¾	95½
St. Regis Paper Co., $4.40 Pfd.	98½	99½
Standard Brands, Inc., $4.50 Pfd.	75	75⅝
West Virginia Pulp & Paper Co., Pfd.	95½	97

THE AMERICAN STOCK EXCHANGE

Quotations on baking, milling and allied stocks listed on the American Stock Exchange:

	1961 High	1961 Low	Sept. 4, 1961 Close	Sept. 11, 1961 Close
Burry Biscuit Corp.	35½	19¼	24⅛	27
Horn & Hardart Corp. of N.Y., $7 Pfd.	189¾	145	....	170

Stocks not traded:

	Bid	Asked
Horn & Hardart Corp. of N. Y.	39¼	40
Pfd. $5	98	100
Seaboard Allied Mills	6⅝	7¼
Wagner Baking Co.	6¼	6½
Pfd.	75	76

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Affiliated Country Elevators

Grain Safety Session Scheduled Sept. 26 at K-State University

Grain processors interested in "brushing up" on current developments in plant safety will have a chance to do so Sept. 26 at Kansas State University, Manhattan.

On that date William I. Clifford, plant superintendent, Garvey Grain, Inc., will moderate a panel of several speakers in Room 205, K-State Union. Topics to be covered include: "Safety in Fumigating Grain—Past and Present Practices," "Report of Progress on the Kansas Grain Fumigation Safety and Health Program," and "The Responsibility of Chemical Manufacturers, Distributors and the Grain Industry in an Effective Safety and Health Program." (Training of personnel and proper labeling of hazardous chemical containers will be covered.)

There will be a paper entitled "Hazardous Conditions and Unsafe Practices in the Grain Industry," and one about the responsibility of plant managers, followed by a general discussion.

The session for grain men will be part of the two-day Governor's Safety Conference scheduled at K-State Sept. 25 and 26. «

LEADING FLOUR IMPORTERS ABROAD

Many of the firms appearing in this list are available to handle the importation of other products besides flour. Some specialize additionally in cereals, some in bakers' sundries and others in feed grains and ingredients. Most of them have connections in adjacent countries and are equipped to handle both import and export business on an extensive basis. For a list of recommended firms dealing in specific commodities or in specific countries write to THE Northwestern MILLER, P.O. Box No. 67, Minneapolis 40, Minn., U.S.A.

ENGLAND

H. Cohen & Co., Ltd.
Hambro House, Vintners' Place
LONDON, E.C. 4
Cable Address: Bortrite, London

Mardorf, Peach & Co., Ltd.
52, Mark Lane LONDON, E.C. 3
Cable Address: "Dorfeach," London

Pillman & Phillips, Ltd.
26, Corn Exchange Chambers
Seething Lane LONDON, E.C. 3
And at Bristol and Liverpool

Vaughan Thomas & Co., Ltd.
The Corn Exchange Building
52/57, Mark Lane LONDON, E.C. 3
Cable Address: "Avaumas," London

GERMANY

Einfuhrhandel Mannheim
Hans Werle
MANNHEIM/GERMANY, E2., 1-3
Cable Address: "Einfuhr" Telex 0463270

DENMARK

Brodr. Justesen
COPENHAGEN
Cable Address: "Justesens," Copenhagen

SCOTLAND

Farquhar Brothers
50 Wellington Street GLASGOW,C.2
Cable Address: "Glencairn," Glasgow

McConnell & Reid, Ltd.
19 Waterloo St. GLASGOW
Cable Address: "Marvel," Glasgow

D. T. Russell & Baird, Ltd.
Also at Leith, Belfast and Liverpool
106 Hope Street GLASGOW,C.2
Cable Address: "Delight"

HOLLAND

Bulsing & Heslenfeld N. V.
Established 1885
Damrak 20-22
AMSTERDAM (C)
Cable Address: "Heslenfeld," Amsterdam

STOLP & CO., LTD.
47-48 Damrak AMSTERDAM
Cable Address: "Cleo"

Gebrs. Van Den Bergh's N. V.
ROTTERDAM
Cables: Locomotion Rotterdam

N. V.
Algemeene Handel-en Industrie Maatschappy
"MEELUNIE"
Heerengracht 209 AMSTERDAM

N. V. Agentuur & Commissiehandel
v/h P. C. Vis & Co.
AMSTERDAM
Cable Address: "Visco"

Luchsinger, Meurs & Co.'s
Handelsmaatschappij, N.V.
AMSTERDAM—(C)
Cable Address: "Matluch"

M. WITSENBURG JR. N. V.
Postbox 945 AMSTERDAM C.
Cable Address: "Witburg"

GRIPPELING & VERKLEY N. V.
Flour Specialists Since 1889
AMSTERDAM
Cable Address: Bygrip, Amsterdam

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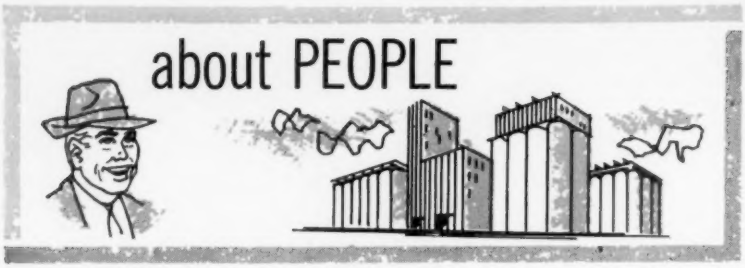

The National Academy of Sciences has "tapped" **Dr. John A. Johnson**, one of cereal chemistry's leading figures, to serve as a member of its five-man committee on cereals. A member of the Department of Flour and Feed Milling Industries at Kansas State University, Manhattan, Dr. Johnson will be an advisor to the government on nutritional aspects of cereals. He has been active in the American Association of Cereal Chemists many years and is AACC's immediate past president.

●

Married Sept. 2 at the Village United Presbyterian Church in Prairie Village, Kansas, were **Elizabeth Joyce (Becky) Johnson**, daughter of **Mr. and Mrs. R. Dean Johnson**, Kansas City, and **Warren Richard Keller**, son of **Mr. and Mrs. Warren F. Keller**. (The senior Mr. Keller is with Sterwin Chemicals, Inc.) The bride's mother is better known as **Bea Johnson**, a prominent Kansas City television personality.

●

Visiting major markets in the U.S. and Canada recently was **Humphrey Vernon**, director of Spillers, Ltd., leading British flour milling firm. Mr. Vernon is the immediate past president of the National Association of British and Irish Millers.

●

Touring the U.S. are three members of a delegation from the Cooperative Wholesale Society, Ltd., Manchester, England. They are **J. C. Robinson**, an official in the firm's packing department; **Mrs. Norman Dodds** and **N. H. Gregory**, directors of the concern. Mrs. Dodds' husband is a Socialist member of the British House of Commons. CWS has extensive flour milling interests and distributes grocery products to hundreds of retail cooperative grocery stores throughout England.

●

Fred A. McBride has been named manager, bakery mix products, International Milling Co. **Al F. Borer**, technical director, bakery mixes, will be in charge of all technical services for that activity, including product development and quality control. Announcement of the appointments for International, which recently entered the bakery mix field, was made by **Lloyd E. Workman**, vice president and general manager of bakery and durum sales. Mr. McBride, with the firm since March of 1960, will continue to headquarter in Minneapolis, bringing 29 years of milling and bakery mix sales and management experi-

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Association of Operative Millers

66th Annual Technical Conference And Trade Show

Denver-Hilton Hotel, May 14-17, 1962

COMMITTEES

General Chairman

L. C. Robinson, Colorado Milling & Elevator Co., Denver

Program

John Wingfield, C.M.&E.

Registration

Daniel F. McAllaster, C.M.&E., Denver, chairman; Jack Higginbotham, C.M.&E., Denver, co-chairman.

Banquet

Adrian I. Swinger, C.M.&E., Denver, chairman; Warren F. Keller, Sterwin Chemicals Inc., Kansas City, co-chairman.

Reception

P. R. McIntire, Utah Machine & Mill Supply, Inc., Salt Lake City, chairman; Pard Williams, H. R. Williams Mill Supply Co., Kansas City, co-chairman.

Exhibits

William Nosler, C.M.&E., Denver, chairman; Salvador Carpio, C.M.&E., Denver, co-chairman.

Allied Trades

John Streit, Wallace & Tiernan, Inc., Denver, chairman; George Smutny, Entoleter, Inc., Kansas City, co-chairman.

Ladies' Activities

Mrs. Nina Robinson, chairman; Committee: Mrs. Wingfield, Mrs. McAllaster, Mrs. Higginbotham, Mrs. Swinger, Mrs. L. P. Crossen, Mrs. Stevens, Mrs. Nosler, and all ladies of District 14.

Fred A. McBride

Al F. Borer

ence to his position. Mr. Borer has 25 years of background in milling and baking product development and quality control work. He headquarters at International's Lockport (N.Y.) mill.

●

New staffer at the James Ford Bell Research Center of General Mills, Inc., Minneapolis, is **Dr. Byron S. Miller**, former member of the faculty in the Department of Flour & Feed Milling Industries at Kansas State University, Manhattan. Dr. Miller is working in the basic milling research department as principal scientist.

●

A. M. Runciman, only recently elected president of United Grain Growers, Ltd., has been appointed to additional responsibilities as a member of the advisory committee to the Canadian Wheat Board. A farmer at Abernethy, Man., for 30 years, Mr. Runciman will represent wheat producers on the committee, replacing the late J. E. Brownlee. «

A. M. Runciman

Peavey Makes Executive Additions, Changes in Management Structure

F. Peavey Heffelfinger, chairman of the board, F. H. Peavey & Co., Minneapolis, has announced additions to the firm's executive committee and to the board of directors.

F. H. Corrigan, now director and vice president and director of terminal operations, has been elected to the executive committee. **C. B. Green**, Duluth, vice president and general manager, Globe Elevators division, becomes a director. **L. J. Carlin** becomes an honorary director. (He formerly headed the Peavey Elevators division and served as a director and member of the executive committee.)

Other changes in assignments of officers include: **G. A. D. Smith**, vice president and controller and a director, elected vice president administration of F. H. Peavey & Co.; **G. G. Giebink**, vice president and treasurer and a director, elected vice president, finance and treasurer; **Ron F. Kennedy**, vice president and director of personnel and public relations, elected vice president, public affairs; **J. K. de Werff**, assistant secretary and assistant general counsel, elected vice president, and general counsel, operations; **K. C. van den Berg**, assistant secretary and assistant general counsel, elected vice president, tax and corporate counsel; **L. E. Anquist**, assistant treasurer, assistant secretary and assistant controller, elected controller in addition to duties as assistant treasurer and assistant secretary;

G. T. Leech, secretary, elected assistant treasurer in addition to duties as secretary; **S. C. Ross**, elected assistant secretary of the Globe Elevators division; **J. A. Hunter**, assistant secretary of American Elevator & Grain Division, elected assistant general manager of the division in addition to duties as assistant secretary; **V. J. Thielen**, elected assistant secretary of the American Elevator & Grain division; **S. B. Rodning**, manager, grocery products, Russell Miller-King Midas Mills division, elected vice president, family sales of the division; **H. G. Deaver, Jr.**, assistant secretary, wheat department of Russell Miller-King Midas Mills, elected vice president, wheat department of the division; **G. P. Marron**, acting manager of Dallas Mill of Russell Miller-King Midas Mills division, elected vice president, Dallas Mill of the division; and **J. S. Ferraro**, formerly administrative in controller's department, appointed chief accountant, F. H. Peavey & Co. «

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WHEAT, OATS & BARLEY
Over 775 Elevators in Manitoba, Saskatchewan and Alberta.
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Mills at
Montreal, Keewatin, Winnipeg, Medicine Hat
HEAD OFFICE: MONTREAL WESTERN OFFICE: WINNIPEG

August Flour Output Shows Rise Over July; Daily Offtake Dips

U.S. wheat flour production, pushed by new crop business, climbed to 22,232,365 cwt. in August, according to estimates made by THE Northwestern MILLER. But daily average output, at 966,625 cwt., dipped slightly as a result of two additional August working days which July did not have.

The August gain in total offtake amounted to 1,455,365 cwt. (7%) over July, which was reported by the Bureau of the Census at 20,777,000 cwt. Daily output dropped 22,375 cwt. (2.3%) from the census bureau's July figure of 989,000 cwt. August had 23 working days, while July had only 21. August of last year had 23 operating days.

Compared with 1960, the current August production of 22,232,365 cwt. was up 38,365 cwt. (0.2%). Daily output gained 1,625 cwt. (0.2%) over the previous August. The official August, 1960, figures were 22,194,000 cwt. for total output and 965,000 cwt. for the daily average. «

During July, wheat flour mills operated at 91% of capacity against 85.2% in June and 90.1% in July of last year.

Mills ground 47,316,000 bu. wheat during July compared with 46,266,000 bu. in the previous month. Wheat offal output was 389,714 tons.

July production of rye flour amounted to 149,000 cwt. and rye grindings were 341,000 bu., with 2,200 tons of offal produced.

These figures represent the production of all commercial mills in the U.S. About 97% of the totals were reported during 1960 and 1959 by 284 mills having a daily capacity of 401 cwt. or more and the balance estimated. The estimated portion is based on the 1958 Census of Manufactures. «

U.S. Wheat Flour Production August, 1961

Mills reporting to THE Northwestern MILLER account for approximately 78% of the total U.S. flour output. Figures for Buffalo, Kansas City and Minneapolis represent 100% of production for those points in hundredweights.

Minneapolis	964,639
Interior Northwest	2,656,779
NORTHWEST	3,621,418
Kansas City	1,255,999
Interior Southwest	5,883,213
SOUTHWEST	7,139,212
BUFFALO	2,260,938
CENTRAL & S.E.	2,375,340
NO. PACIFIC COAST	1,944,337
TOTAL	17,341,245
Adjusted	78.0
U.S. TOTAL	22,232,365
DAILY AVERAGE	966,625

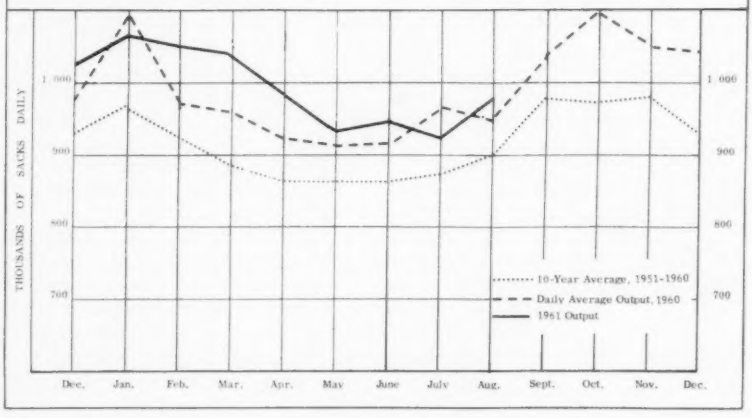
Bureau of Census reported 20,777,000 cwt. (989,000 daily) for July, 1961.
Bureau of Census reported 22,194,000 cwt. (965,000 daily) for August, 1960.

●

20,777,000 Cwt. Flour Produced During July

Wheat flour production in July was 20,777,000 cwt., averaging 989,000 cwt. a working day, it has been reported by the Bureau of the Census. This compared with an average output a working day of 926,000 cwt. in June and 971,000 cwt. during July of 1960.

U. S. AVERAGE DAILY FLOUR PRODUCTION BY MONTHS



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MANUFACTURERS OF: *Ogilvie* All Purpose, Whole Wheat, Graham Flours—*Ogilvie* Cake Mixes, Hot Roll Mix, Pie Crust Mix—*Ogilvie* Instant & Quick Cooking Oats, Scotch Oatmeal, Wheat Hearts, Rolled Wheat, Vita-B Cereal, Cracked Wheat—*Ogilvie* Tonic Wheat Germ, Corn Meal, All Purpose Health Bran—*Ogilvie* Pot and Pearl Barley.

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Mills at: Montreal • Fort William • Winnipeg • Medicine Hat • Edmonton *Cable Address:* OGILVIE MONTREAL—all codes used

WHERE THEY ARE MEETING

Sept. 23—District 8, Association of Operative Millers; Prudhommes Lodge, Vineland, Ont., Canada; sec., Roy F. Kehr, Kressilk Products, Inc., Depew, N.Y.

Sept. 23-24—Kansas Bakers Assn., fall meeting; Lassen Hotel, Wichita; sec., Warren Burke, 3232 Roanoke Rd., Kansas City, Mo.

Sept. 23-25—Southwest Bakers Assn., annual convention; Hilton Inn., El Paso, Texas; sec., Ralph Kilgore, P.O. Box 127, Albuquerque, N.M.

Sept. 23-26—New Jersey Bakers Board of Trade, anniversary convention and exhibition; Essex House Hotel, Newark, N.J.; sec., Michael Herzog, 48 Cleremont Ave., New Brunswick, N.J.

Sept. 24-26—Kentucky Master Bakers Assn., annual convention; Sheraton Gibson Hotel, Cincinnati, Ohio; sec., Al Wohlleb, 743 Loretto St., Louisville 11.

Sept. 28-29—Michigan State Millers, annual meeting; St. Clair, Mich.

Sept. 28-29 — National Soft Wheat Millers Assn. and the Self-Rising Flour and Corn Meal Program, annual meeting; Atlanta Biltmore Hotel, Atlanta, Ga.; sec., Soft Wheat Millers, Rondal Huffman, Room 1694 Board of Trade Bldg., Chicago 4, Ill.; dir., Self-Rising Flour and Corn Meal Program, Howard Lampman, 1509 Jackson-Franklin Bldg., Chicago 6, Ill.

Sept. 29-30—District 9, Association of Operative Millers; Davenport Hotel, Spokane, Wash.; sec., Richard Schmidt, Centennial Mills, Inc., Spokane.

October

Oct. 4-7—National Bakery Suppliers Assn., annual meeting; Hotel Shelburne, Atlantic City, N.J.; sec., William Effron, Effron Bakery Supply Co., Poughkeepsie, N.Y.

Oct. 6-7—District 1, Association of Operative Millers; Rambler Motel, Hutchinson, Kansas; sec., Richard Magerkurth, Air Age Equipment, Inc., Topeka.

Oct. 7-12—1961 Baking Industry Exposition; Convention Hall, Atlantic City, N.J.; sec.-treas., Harold Fiedler, 20 N. Wacker Drive, Chicago 6, Ill.

Oct. 12—Retail Master Bakers Association of Western Pennsylvania, annual clinic; South Vocational High, Pittsburgh, Pa.; sec., J. P. Byrnes, Byrnes & Keifer Co., 1133 Penn Avenue, Pittsburgh, Pa.

Oct. 13-14—District 6, Association of Operative Millers; Lowell, Mich.; sec., Oscar J. Nelson, King Milling Co., Lowell, Mich.

Oct. 15-17—Missouri Bakers Assn., annual fall meeting; Kirkwood Lodge, Osage Beach, Mo.; sec., George Buford, 2214 Central Avenue, Kansas City 2, Kansas.

Oct. 20-21—Districts 3 and 5, Association of Operative Millers; Danville, Ill.; sec., Hollis Maun, Jr., M.M.C. Sales Corp., Dover, Ohio.

Oct. 21-22—Nebraska Bakers Assn., annual convention; Sheraton Fontenelle Hotel, Omaha, Neb.; sec., L. F. O'Konski, Jr., 1806 Chicago St., Omaha.

Oct. 27-28—District 11, Association of Operative Millers; Barringer Hotel, Charlotte, N.C.; sec., Marvin D. Brown, Spartan Grain & Mill Co., Spartanburg, S.C.

November

Nov. 6—Connecticut Bakers Assn., annual convention; Roger Smith Hotel, Waterbury; sec., Charles Barr, 584 Campbell Ave., West Haven 16, Conn.

Nov. 6-8—Montana Grain Growers Assn., 6th annual convention; Hotel Rainbow, Great Falls, Mont.; sec., Dr. E. R. Hehn, P.O. Box 11, Great Falls, Mont.

Nov. 13-14—Washingtun Association of Wheat Growers, annual convention; Walla Walla, Washington; sec., Geo. W. Johnson, Ritzville, Wash.

Nov. 13-14—New England Bakers Assn., fall convention; Sheraton-Plaza Hotel, Boston, Mass.; sec., William E. Bowman, 945 Great Plain Ave., Room 9, Needham 92, Mass.

Nov. 17-18—District 12, Association of Operative Millers; Newhouse Hotel, Salt Lake City, Utah; sec., Joseph J. Keiser, Salt Lake City Flour Mills, Salt Lake City.

December

Dec. 6-8—National Association of Wheat Growers, annual convention; Boise, Idaho; sec., Harold West, Idaho Wheat Growers Assn., Boise.

Dec. 9—District 2, Association of Operative Millers; Aladdin Hotel, Kansas City, Mo.; sec., George Smutny, Entoleter, Inc., Kansas City.

Dec. 15-16—District 1, Association of

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Chatham • Sarnia • St. Boniface • Medicine Hat • Calgary • New Westminster

Operative Millers; Wichita, Kansas; sec., Richard Magergurth, Air Age Equipment Inc., Topeka.

1962

January

Jan. 9—Michigan Bakers Assn., 10th annual Bakers Educational Conference; Kellogg Center, Michigan State University, East Lansing, Mich.; sec., Fred Hill, Hill's Bakery, Cedar Springs, Mich.

Jan. 16-18—Hard Red Winter Wheat Workers, annual conference; Kellogg Center, Lincoln, Neb.; chairman, A. M. Schlehuber, Oklahoma State University, Dept. of Agronomy, Stillwater, Okla.

Jan. 28-30—Potomac States Bakers Assn., annual convention; Lord Baltimore Hotel, Baltimore, Md.; pres., Charles J. Schupp, 126 Mathieson Bldg., Baltimore 2.

Jan. 31—Potomac States Bakers Assn., post convention executive committee meeting; Lord Baltimore Hotel, Baltimore, Md.

February

Feb. 11-13—Pennsylvania Bakers Assn., annual convention; Bellevue Stratford Hotel, Philadelphia, Pa.; sec., Theo. Staab, 600 N. Third St., Harrisburg, Pa.

March

March 19-20—Grain and Feed Dealers National Assn., pre-convention secretaries' circle meetings; Denver-Hilton Hotel, Denver, Colo.; sec., Herbert L. Sharp, 401 Folger Bldg., 725 15th Street, Washington, D.C.

March 19-26—Associated Retail Bakers of America, National Retail Bakers Week; chm., Walter R. Schuchardt, ARBA, 731-35 W. Sheridan Rd., Chicago 13, Ill.

March 21-23—Grain and Feed Dealers National Assn., annual convention; Denver-Hilton Hotel, Denver, Colo.; sec., Herbert L. Sharp, 401 Folger Bldg., 725 15th Street, Washington, D.C.

April

April 9-11—Texas Bakers Assn., annual convention; Hotel Texas, Ft. Worth; sec., Guy Lichyter, 1121 National Building, Dallas 1, Texas.

April 26-28—Southern Bakers Assn., annual convention; Boca Raton Hotel, Boca Raton, Fla.; sec., Benson L. Skelton, Henry Grady Bldg., 26 Cain St., N.W., Atlanta 3, Ga.

April 29-May 2—Millers National Federation, annual convention; Hotel Olympic, Seattle, Wash.; sec., John J. Sherlock, 309 W. Jackson Blvd., Chicago 6.

April 29-May 2—Associated Retail Bakers of America, annual convention and exhibition; Bellevue-Stratford Hotel, Philadelphia, Pa.; sec., Miss Trudy Schurr, 731-735 W. Sheridan Rd., Chicago 13, Ill.

May

May 4-5—Illinois Grain Dealers' Assn., 69th annual convention; St. Nicholas Hotel, Springfield, Ill.; sec., Donald E. Palmer, 910 Lehmann Bldg., Peoria, Ill.

May 6-8—National Council of the Baking Industry, annual conference; Queen Elizabeth Hotel, Montreal, P.Q., Canada; dir., R. H. Ackert, 4 N. Sherbourne St., Suite 105, Toronto 5, Ont., Canada.

May 14-17—Association of Operative Millers, annual technical conference and trade show; Denver-Hilton Hotel, Denver, Colo.; exec. vice president, Donald S. Eber, 639 Board of Trade Bldg., Kansas City 5, Mo.

'Round the Districts with AOM

District 4

New applications of sifters and sieves, plus an address on wheat marketing, were the subjects covered by speakers at the September meeting of District 4, Association of Operative Millers, held in Minneapolis.

Phil Wolters, Nor-Vell, Inc., covered the first topic, with a paper bearing the title, "What Is Being Done in the Trade for Sifters and Sieves in New Applications." Tom Moe, wheat buyer, the International Milling Co., handled the subject of grain marketing, explaining the manner in which grain men perform their services of selecting wheat for the millers to use.

John D. Retzer, Russell Miller-King Midas Mills, Superior, district chairman, presided. The Allied Trades Committee of District 4 sponsored a reception for millers in conjunction with the meeting. «

District 14

A good cross-section of the milling industry, its problems and accomplishments, was covered by speakers who appeared before District 14, Association of Operative Millers, at its recent meeting in Eldorado Springs, Colo.

John Wingfield, Colorado Milling & Elevator Co., spoke on "Mill Instrumentation" and George Smutny, Entoleter, Inc., covered "Application and Uses of Entoleters." Ray Pearington, Power Transmission, gave a talk entitled "A Field of Grain—A Field of Dollars." A film, "Fighting Fires in Country Elevators," was shown through courtesy of the Mill Mutuals insurance company.

Jack Higginbotham, C. M. & E., district chairman, presided, with Bill Nosler, also of C. M. & E., as program chairman. «

CLASSIFIED DEPARTMENT

Advertisements in this department are 20¢ per word; minimum charge, $3.00. (Count six words for signature.) Add 25¢ per insertion for forwarding of replies if keyed to office of publication. Situations Wanted advertisements will be accepted for 15¢ per word, $2.25 minimum. Add 25¢ per insertion for keyed replies. Display Want Ads $20 per inch per insertion. All Want Ads cash with order.

◆ ◆ ◆

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OPENING FOR SECOND MILLER, MINNEapolis area. Seeking experienced younger man with qualifications to move up. Address Ad No. 7226, The Northwestern Miller, Minneapolis 40, Minn.

APPLIED RESEARCH ASSOCIATE OPPORTUnity. Seeking experienced man with background in flour milling. Prefer Kansas State Milling Industries chemical engineering or mechanical engineering education. Contact A. A. Ackels, Bay State Milling Co., Winona, Minn.

MILLER — EXPERIENCED OPERATING MILLER to operate a large eastern manufacturing company corn mill. Good starting salary. Many liberal fringe benefits. Address Ad No. 7243, The Northwestern Miller, Minneapolis 40, Minn.

Distributor Named for Sedimentation Test Equipment Line

Newly appointed exclusive distributor of the line of sedimentation test equipment designed and manufactured by Strand Shaker Co. of Minneapolis is Hegman, Inc., also of Minneapolis, equipment and protein test equipment suppliers.

Making the announcement, Marshall Carpenter of the Hegman firm declared: "The future of the sedimentation test must be reported to be conjectural. It is certainly of significant importance. We do not believe that the existing protein tests which have been advanced to a high degree of exactness will be replaced by the new sedimentation test. We do feel, however, that sedimentation tests will find a definite application in many areas of the industry."

Erling Strand of Strand Shaker, designer of the equipment, has been engaged as a wheat grower and in the government's grain inspection service over a long period of years.

Hegman, Inc., is associated with Dr. Doyle Udy in the development of the Udy protein analyzer for quick protein tests which functions with the use of the dye-binding principle. «

MARKET QUOTATIONS AT A GLANCE

FLOUR

Sept. 13 Quotations, Based on Carlots, Prompt Delivery

	Kansas City Hard Winter	Minneapolis Spring	Buffalo Spring	Chicago	New York	Seattle
Bakery short patent	$5.45@5.55	$5.85@5.95	$6.38@6.46	$...@...	$...@...	$...@...
Bakery standard patent	5.35@5.45	5.75@5.85	6.28@6.36	...@...	...@...	...@...
First clear	4.15@4.30	...@...	5.50@5.54	...@...	...@...	...@...
High gluten	5.70@5.80	6.10@6.20	6.63@6.71	...@...	...@...	...@...
*Family	6.15@7.00	...@7.20	...@7.20	...@...	...@...	...@...
*Bakers fancy cake	...@...	...@...	...@...	...@...	...@7.95	...@...
Straight grade cracker flour	...@...	...@...	...@...	...@5.15	...@...	...@...
*Pastry	...@...	...@...	...@...	...@...	...@...	...@8.32
Rye, white	...@...	4.29@4.39	...@...	4.57@4.67	...@...	...@...
Rye, medium	...@...	4.09@4.19	...@...	4.37@4.47	...@...	...@...
Rye, dark	...@...	3.54@3.64	...@...	3.82@3.92	...@...	...@...
Semolina	...@...	...@9.40	...@...	...@...	...@...	...@...
Semolina blend	...@...	...@7.90	...@...	...@...	...@...	...@...

	Toronto	Winnipeg
*Spring top patent	$6.55@6.70	$6.70@6.90
**Bakers	5.30@5.50	5.20@5.40

MILLFEED

Sept. 13 Quotations, Based on Carlots, Prompt Delivery

	Minneapolis		Kansas City		Chicago		Seattle	
	Sacked	Bulk	Sacked	Bulk	Sacked	Bulk	Sacked	Bulk
Bran	$34.00@34.50	$29.00@29.50	$34.00@34.50	$28.50@29.00	$36.50@37.00	$27.50@28.00	$....@....	$....@....
Std. midds.	....@34.00	27.50@28.00	....@....	29.00@29.50	38.50@39.00	32.00@32.50	....@....	....@....
Red dog	....@40.00	....@....	....@....	....@....	....@44.00	....@....	44.50@45.00	40.50@41.00
Shorts	....@....	....@....	37.00@37.50	29.50@30.00	....@....	....@....	....@....	....@....
Millrun	....@....	....@....	....@....	....@....	....@....	....@....	36.50@37.00	32.50@33.00

	Bran	Shorts	Middlings
Toronto	$49.00@50.00	$53.00@54.00	$67.00@68.00
Winnipeg	37.00@40.00	42.00@45.00	51.00@55.00

*Flour prices 100 lb. cottons.
**Flour prices 100 lb. papers.

G-F Elevator Co.
GRAND FORKS, N. D.

MODERN STORAGE
and
MERCHANDISING
TRUCK-RAIL
★
5,000,000 BUS.
FEDERALLY LICENSED
★
ROBERT (BOB) DOWNHAM, MGR.
P. O. BOX 108, PHONE 2-9491
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GRIST of GRINS

Personnel Director: What experience have you had and what work have you done?

Pretty Job Candidate: I was a secretary. All I had to do was to look like a girl, think like a man, act like a lady and work like a dog.

◆ ◆ ◆

"How can I teach a girl how to swim?"

"Put her in the water, hold your arms around her, and . . . "

"But it's my sister."

"Push her off the diving board."

◆ ◆ ◆

Tailor (wrapping up suit): "You know, I'm letting you have this at less than it cost me to make it."

Buyer: "You're always telling me that. How do you make a living?"

Tailor: "I make a small profit on the paper and string."

◆ ◆ ◆

"My wife has the worst habit of staying up until one and two o'clock in the morning, and I can't break her of it."

"What is she doing all that time?"

"Waiting for me to come home."

◆ ◆ ◆

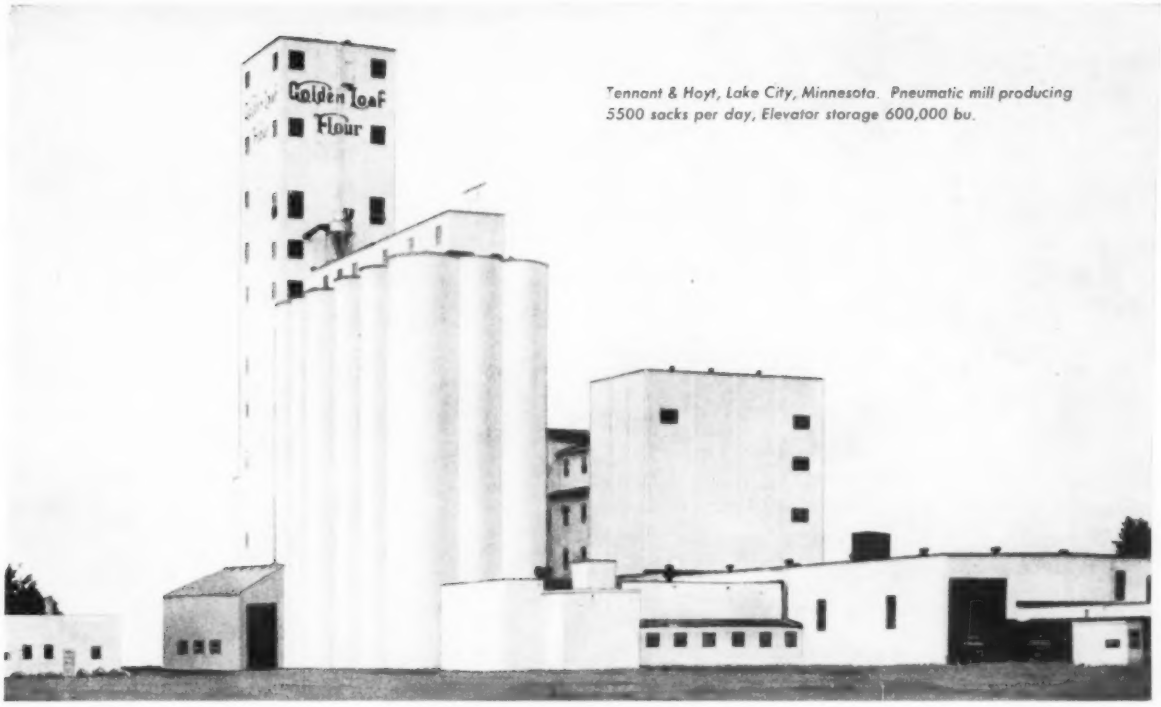
"Having trouble with your old jalopy?"

"Yeah, I bought a carburetor that saved 30% on gas, a timer that saved another 50% and spark plugs that saved 40%. I drove 10 miles and the gas tank overflowed."

◆ ◆ ◆

Smith: "What made you decide to put off your wedding by two days?"

Jones: "Well, you see, I figured it out that my silver anniversary would come on a Saturday and I always play golf on Saturdays."



Tennant & Hoyt, Lake City, Minnesota. Pneumatic mill producing 5500 sacks per day, Elevator storage 600,000 bu.

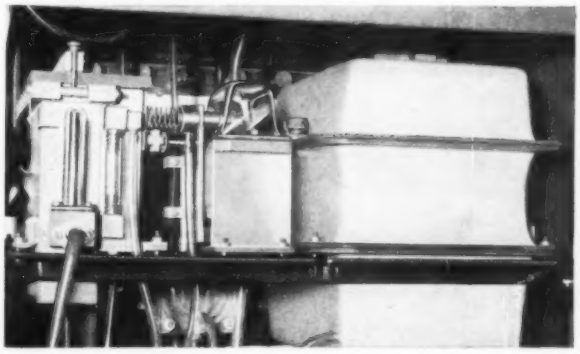
TENNANT & HOYT
KEEPS OVEN SPRING WORKING IN SPRING WHEAT FLOURS with W&T FLOUR TREATMENT

To give its strong spring wheat flours that extra kick, Tennant & Hoyt chooses W&T flour treatment.

Experience proves that Dyox® strengthens gluten to maximum, makes doughs more machinable, prevents "stick-ups". And there's no waste with W&T's Dyox. Accurate proportioning equipment makes chlorine dioxide gas as it is needed —applies it uniformly in precise amounts.

Along with Dyox, Tennant & Hoyt uses Novadelox® to whiten and brighten flour . . . give it the color consumers prefer. Novadelox is W&T's powder bleaching agent—made by W&T, distributed by W&T.

Tennant & Hoyt is only one of the many milling companies using W&T flour treatment. If your mill is not one of these, investigate the advantages of Wallace & Tiernan's complete flour service.



Proportioning assembly of Dyox machine. This is the heart of the Dyox Process. Here, proportional amounts of air, chlorine, sodium chlorite are metered. When mixed in a reaction tower, chlorine dioxide gas results. This is generated as needed and metered as a gas not a liquid.

WALLACE & TIERNAN INC.

NOVADEL FLOUR SERVICE DIVISION
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY

N-120.64

The quiet miracle that enriches every life

The Enrichment of flour, bread and bakery products, a program which began 20 years ago, has contributed much to the buoyant health and the physical and mental vigor of our country. And because it has, this child and her fellow Americans can look forward to a healthier, happier future. We're proud of the part that the millers and bakers of America have played in the development of Enrichment. On this 20th anniversary, we salute the quiet miracle.

Good eating will always begin with bread

BAKERY SALES SERVICE
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General Mills

20 YEARS ENRICHMENT "The Quiet Miracle"

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